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UC-23  
Radioisotope and  
Radiation Applications

LIST OF AEC RADIOISOTOPE CUSTOMERS  
WITH SUMMARY OF RADIOISOTOPE SHIPMENTS  
FY 1973

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RICHLAND, WASHINGTON 99352

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Date: *06/13/2007*

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NOMENCLATUREI. CLASSIFICATIONS

Cyclotron Service Irradiations	CSI	Miscellaneous Compound Preparations	MCP
Depleted Uranium	DU	Normal Uranium	NU
Enriched Uranium	EU	Reactor Service Irradiations	RSI
Fission Products	FP	Special Services	SS
		Targets	Tgs

II. ISOTOPE SUPPLIER

Argonne National Laboratory	(A)	Hanford Engineering Development Laboratory	(H)
Battelle-Pacific Northwest Laboratories	(P)	Mound Laboratory	(M)
Brookhaven National Laboratory	(B)	Oak Ridge National Laboratory	(O)
Idaho Nuclear Corporation	(I)	Savannah River Plant	(S)
		United Nuclear Inc.	(U)

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LIST OF AEC RADIOISOTOPE CUSTOMERS  
WITH SUMMARY OF RADIOISOTOPE SHIPMENTS

FY 1973

INTRODUCTION

This tenth edition of the AEC radioisotope customer list has been prepared at the request of the Commission's Division of Biomedical and Environmental Research. It is a compilation of radioisotope sales during FY 1973 by AEC facilities<sup>(a)</sup> at Argonne National Laboratory, Battelle-Pacific Northwest Laboratories, Brookhaven National Laboratory, United Nuclear Inc., Idaho Nuclear Corporation, Hanford Engineering Development Laboratory, Mound Laboratory, Oak Ridge National Laboratory, and Savannah River Plant.

The information is divided into four sections. The first is an alphabetical list of domestic and foreign customers. Included are the isotopes purchased by each customer and the laboratory supplying each isotope. The second section is an alphabetical list of isotopes, cross-referenced to customer numbers and again divided into the domestic and foreign categories. The third section is an alphabetical list of states and countries, also cross-referenced to customer numbers, indicating geographical concentrations of isotope users. The final section is a comprehensive table providing an alphabetical listing of the isotopes and a breakdown of shipments, quantities, and dollars for each isotope under the Domestic, Foreign, and Project (AEC facilities) categories as well as the total figures for each isotope.

Previous reports in this series are TID-21620 (FY 1964), ORNL-IIC-6 (FY 1965), ORNL-IIC-9 (FY 1966), ORNL-IIC-13 (FY 1967), ORNL-IIC-17 (FY 1968), ORNL-IIC-27 (FY 1969), ORNL-IIC-32 (FY 1970), ORNL-IIC-38 (FY 1971) and BNWL-1744 (FY 1972). Similar reports covering stable isotope distribution have also been prepared (ORNL-TM-4480), "Stable Isotope Customer List and Summary of Shipments, FY 1973," and (MLM-2097), "Stable Isotope Sales: Mound Laboratory Customer and Shipment Summaries, FY 1973."

(a) To differentiate among the suppliers, the isotopes are followed by a letter designating the site from which the isotope was purchased (see Nomenclature, Part 11). All entries for Argonne, United Nuclear and Idaho are either reactor service irradiations, cyclotron service irradiations, or both, with no processed isotopes being sold, while the entries for Savannah River represent material for resale and loans.

I. ALPHABETICAL LIST OF CUSTOMERS, WITH ISOTOPES  
PURCHASED AND RESPECTIVE SUPPLIERS

A. DOMESTIC

- |  |   |
|--|---|
| <p>1 Advanced Technology Center, Inc.<br/>P.O. Box 6144<br/>Dallas,, TX 75222<br/><br/><math>^{252}\text{Cf}(\text{S})</math>, <math>^{129}\text{I}(\text{O})</math></p> <p>2 Aerojet: Nuclear Company<br/>550 Second St.<br/>P.O. Box 1845<br/>Idaho Falls, ID 83401<br/><br/><math>^{140}\text{Ba}(\text{O})</math>, <math>^{254}\text{Es}(\text{O})</math>, <math>^{152+154}\text{Eu}(\text{O})</math>,<br/><math>^{56}(\text{O})</math>, <math>^{115}\text{In}(\text{H})</math>, <math>^{95}\text{Nb}(\text{O})</math>, <math>^{237}\text{Np}(\text{H})</math>,<br/><math>^{236}\text{Pu}(\text{O})</math>, <math>^{103}\text{Ru}(\text{O})</math>, <math>^{151}\text{Sm}(\text{O})</math>, <math>^{133}\text{Xe}(\text{O})</math>,<br/><math>^{95}\text{Zr}(\text{O})</math></p> <p>3 Aerojet. Solid Propulsion Co.<br/>P.O. Box 13400<br/>Sacramento, CA 95813<br/><br/><math>^{252}\text{Cf}(\text{S})</math></p> <p>4 Air Reduction Company<br/>Airco Industrial Gases Division<br/>Union Landing and River Roads<br/>Riverton, NJ 08077<br/><br/><math>^8\text{Kr}(\text{O})</math></p> <p>5 Airco, Inc.<br/>Central Research Laboratories<br/>Murray Hill, NJ 07974<br/><br/><math>^{133}\text{Xe}(\text{O})</math></p> <p>6 Alabama, University of<br/>Medical Center<br/>1919 Seventh Ave. South<br/>Birmingham, AL 35486<br/><br/><math>^{133}\text{Xe}(\text{O})</math></p> <p>7 Alabama, University of<br/>College of Engineering<br/>Loyde Hall<br/>University, AL 35486<br/><br/><math>^{252}\text{Cf}(\text{S})</math></p> <p>8 Allen-Bradley Company<br/>136 W. Greenfield Ave.<br/>Milwaukee, WI 53204<br/><br/><math>^8\text{Kr}(\text{O})</math></p> <p>9 American Atomics Corporation<br/>425 South Plumer<br/>Tucson, AZ 85719<br/><br/><math>^8\text{Kr}(\text{O})</math></p> | <p>10 American Oncologic Hospital<br/>Central and Shelmire Ave.<br/>Fox Chase<br/>Philadelphia, PA 19111<br/><br/><math>^{252}\text{Cf}(\text{S})</math></p> <p>11 American Science and Engineering, Inc.<br/>Cambridge, MA 02138<br/><br/><math>^{67}\text{Ga}(\text{O})</math>, <math>^{252}\text{Cf}(\text{S})</math>, MCP(O)</p> <p>12 Amersham-Searle Corporation<br/>Arlington Heights, IL 60005<br/><br/><math>^{241}\text{Am}(\text{O})</math>, <math>^{238}\text{Pu}(\text{O})</math></p> <p>13 Argonne Cancer Research Hospital<br/>950 East 59th St.<br/>Chicago, IL 60637<br/><br/><math>^{60}\text{Co}(\text{I})</math></p> <p>14 Argonne National Laboratory<br/>P.O. Box 2528<br/>Idaho Falls, ID 83407<br/><br/><math>^{10}\text{B}(\text{H})</math>, <math>\text{Sr}(\text{H})</math>, <math>^{90}\text{Sr}(\text{H})</math>, <math>^{90}\text{Y}(\text{H})</math>, RSI(B)</p> <p>15 Argonne National Laboratory<br/>9700 South Cass Ave.<br/>Argonne, IL 60439<br/><br/><math>^{243}\text{Am}(\text{O})</math>, <math>^{144}\text{Ce}(\text{O})</math>, <math>^{252}\text{Cf}(\text{O})</math>, <math>^{244}\text{Cm}(\text{O})</math>,<br/><math>^{245}\text{Cm}(\text{O})</math>, <math>^{246}\text{Cm}(\text{O})</math>, <math>^{253}\text{Es}(\text{O})</math>, <math>^{254}\text{Es}(\text{O})</math>,<br/><math>^{152+154}\text{Eu}(\text{O})</math>, <math>^{181}\text{Hf}(\text{O})</math>, <math>^{129}\text{I}(\text{O})</math>, MCP(O),<br/><math>^{237}\text{Np}(\text{H})</math>, <math>^{37}\text{Np}(\text{O})</math>, <math>^{143}\text{Pr}(\text{O})</math>, <math>^{236}\text{Pu}(\text{O})</math>,<br/><math>^{239}\text{Pu}(\text{O})</math>, <math>^{242}\text{Pu}(\text{O})</math>, <math>^{106}\text{Ru}(\text{O})</math>, <math>^{89}\text{Sr}(\text{O})</math>,<br/><math>^{230}\text{Th}(\text{O})</math>, <math>^{233}\text{U}(\text{O})</math>, <math>^{234}\text{U}(\text{O})</math>, <math>^{235}\text{U}(\text{O})</math>,<br/><math>^{236}\text{U}(\text{O})</math>, <math>^{238}\text{U}(\text{O})</math>, <math>^{133}\text{Xe}(\text{O})</math>, <math>^{91}\text{Y}(\text{O})</math>,<br/><math>^{95}\text{Zr}(\text{O})</math>, <math>^{170}\text{TM}(\text{I})</math>, RSI(B)</p> <p>16 Argonne National Laboratory<br/><del>EBR</del> II Site, National Reactor<br/>Test. Station, Central Facilities<br/>Warehouse, Scoville, ID<br/><br/><math>^{90}\text{Sr}(\text{P})</math></p> <p>17 Arizona State University<br/>Tempe, AZ 85281<br/><br/><math>^{134}\text{Cs}(\text{I})</math>, <math>^8\text{Kr}(\text{O})</math></p> <p>18 Armed Forces Radiobiology<br/>Research Institute<br/>Bethesda, MD 20014<br/><br/><math>^{60}\text{Co}(\text{B})</math></p> |
|--|---|

- 19 Atlantic Richfield Hanford Company  
P.O. Box 250  
Richland, WA 99352  
 $^{110}\text{Ag}(\text{H})$ ,  $^{140}\text{BaLa}(\text{H})$ ,  $^{45}\text{Ca}(\text{H})$ ,  
 $^{139}\text{Ce}(\text{H})$ ,  $^{141}\text{Ce}(\text{H})$ ,  $^{144}\text{CePr}(\text{H})$ ,  $^{60}\text{Co}(\text{H})$ ,  
 $^{134}\text{Cs}(\text{H})$ ,  $^{137}\text{Cs}(\text{H})$ ,  $^{152}\text{Eu}(\text{H})$ ,  $^{154}\text{Eu}(\text{H})$ ,  
 $^{155}\text{Eu}(\text{H})$ ,  $^{59}\text{Fe}(\text{H})$ ,  $^3\text{H}(\text{H})$ ,  $^{203}\text{Hg}(\text{H})$ ,  
 $^{131}\text{I}(\text{H})$ ,  $^{22}\text{Na}(\text{H})$ ,  $^{95}\text{Nb}(\text{H})$ ,  $^{239}\text{Np}(\text{H})$ ,  
 $^{147}\text{Pm}(\text{H})$ ,  $^{210}\text{Po}(\text{H})$ ,  $^{239}\text{Pu}(\text{H})$ ,  $^{85}\text{Rb}(\text{H})$ ,  
 $^{103}\text{Ru}(\text{H})$ ,  $^{106}\text{Ru}(\text{H})$ ,  $^{35}\text{S}(\text{H})$ ,  $^{124}\text{Sb}(\text{H})$ ,  
 $^{125}\text{Sb}(\text{H})$ ,  $^{46}\text{Sc}(\text{H})$ ,  $^{\text{Sr}}(\text{H})$ ,  $^{85}\text{Sr}(\text{H})$ ,  
 $^{89}\text{Sr}(\text{H})$ ,  $^{185}\text{W}(\text{H})$ ,  $^{88}\text{Y}(\text{H})$ ,  $^{90}\text{Y}(\text{H})$ ,  
 $^{91}\text{Y}(\text{H})$ ,  $^{95}\text{Zr}(\text{H})$
- 20 Atomics International, Division of  
North American Rockwell Corporation  
P.O. Box 309  
Canoga Park, CA 91304  
 $^{10}\text{B}(\text{H})$
- 21 Automation Industries, Inc.  
Instruments Division  
Rt. 113  
Kimberson Rd.  
Phoenixville, PA 19469  
 $^{192}\text{Ir}(\text{H})$
- 22 Augsburg College  
Minneapolis, MN 55404  
 $^{252}\text{Cf}(\text{S})$
- 23 Babcock Electronics Corporation  
P.O. Box 1499  
Costa Mesa, CA 92626  
 $^8\text{Kr}(\text{O})$
- 24 Barnes Engineering Company  
Stamford, CT 06904  
 $\text{U}(\text{S})$
- 25 Battelle Memorial Institute  
Columbus Laboratory  
505 King Ave.  
Columbus, OH 43201  
 $^{252}\text{Cf}(\text{S})$ ,  $^{238}\text{Pu}(\text{O})$
- 26 Battelle Pacific Northwest Laboratories  
P.O. Box 999  
Richland, WA 99352  
 $^{241}\text{Am}(\text{H})$ ,  $^{243}\text{Am}(\text{O})$ ,  $^{140}\text{Ba}(\text{O})$ ,  $^{14}\text{C}(\text{H})$ ,  
 $\text{Ce}(\text{H})$ ,  $^{252}\text{Cf}(\text{S})$ ,  $^{244}\text{Cm}(\text{O})$ ,  $^{137}\text{Cs}(\text{H})$ ,  
 $\text{CsI}(\text{O})$ ,  $^3\text{H}(\text{H})$ ,  $^{131}\text{I}(\text{H})$ ,  $^{131}\text{I}(\text{O})$ ,  
 $^{85}\text{Kr}(\text{O})$ ,  $^{95}\text{Nb}(\text{H})$ ,  $^{237}\text{Np}(\text{H})$ ,  $^{239}\text{Np}(\text{H})$ ,  
 $^{143}\text{Pm}(\text{H})$ ,  $^{210}\text{Po}(\text{H})$ ,  $^{144}\text{Pr}(\text{H})$ ,  $^{239}\text{Pu}(\text{H})$ ,  
 $^{238}\text{Pu}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $^{145}\text{Sm}(\text{H})$ ,  $^{90}\text{Sr}(\text{H})$ ,  
 $\text{SS}(\text{O})$ ,  $^{90}\text{Y}(\text{H})$ ,  $^{65}\text{Zn}(\text{H})$ ,  $\text{Zr}(\text{H})$ ,  $^{95}\text{Zr}(\text{O})$ ,  
 $\text{DU}(\text{O})$ ,  $\text{EU}(\text{O})$ ,  $\text{NU}(\text{O})$
- 27 Bell Telephone Laboratories  
Murray Hill, NJ 07971  
 $\text{MCP}(\text{O})$ ,  $\text{SS}(\text{O})$
- 28 Biochemical and Nuclear Corporation  
(Norchem Division)  
P.O. Box 749  
Burbank, CA 91503  
 $^3\text{H}(\text{O})$
- 29 Boston University  
100 Cunnington St.  
Boston, MA 02215  
 $^{89}\text{Sr}(\text{O})$
- 30 Bowman Gray School of Medicine  
Winston-Salem, NC 27103  
 $^{47}\text{Ca}(\text{O})$ ,  $\text{FPSS}(\text{O})$ ,  $^3\text{H}(\text{O})$ ,  $\text{MCP}(\text{O})$ ,  
 $^{238}\text{Pu}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $^{99}\text{Tc}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  
 $^{95}\text{Zr}(\text{O})$
- 31 Brookhaven National Laboratory  
Associated Universities, Inc.  
Upton, NY 11973  
 $^{47}\text{Ca}(\text{O})$ ,  $^{252}\text{Cf}(\text{S})$ ,  $\text{FPSS}(\text{O})$ ,  $^3\text{H}(\text{O})$ ,  
 $\text{MCP}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  $^{99}\text{Tc}$ ,  $^{95}\text{Zr}(\text{O})$
- 32 Burroughs Corporation  
460 Sierra Madre Villa  
Pasadena, CA 91109  
 $^8\text{Kr}(\text{O})$
- 33 California, University of  
Los Angeles  
650 Circle Drive South  
Los Angeles, CA 90405  
 $^{28}\text{Mg}(\text{B})$
- 34 California Institute of Technology  
1201 E. California Blvd.  
Pasadena, CA 91109  
 $^{252}\text{Cf}(\text{S})$ ,  $^{235}\text{U}(\text{O})$ ,  $^{238}\text{U}(\text{O})$
- 35 California State College  
5151 State College Dr.  
Los Angeles, CA 90032  
 $^{252}\text{Cf}(\text{S})$
- 36 California State College  
18111 Nordhoff St.  
Northridge, CA 91324  
 $^{252}\text{Cf}(\text{S})$

- 37 California, University of  
400 Sproul Hall  
Berkeley, CA 94720  
 $^{131}\text{I}(\text{O})$
- 38 California, University of  
Lawrence Berkeley Laboratory  
Berkeley, CA 94701  
 $^{257}\text{Fm}(\text{O})$
- 39 California, University of  
P.O. Box CA  
Irvine, CA 92664  
 $^{252}\text{Cf}(\text{S})$
- 40 California, University of  
Lawrence Livermore Laboratory  
7000 East Ave.  
Livermore, CA 94550  
 $^3\text{H}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$ ,  $\text{MCP}(\text{O})$ ,  $^{237}\text{Np}(\text{O})$ ,  
 $^{238}\text{Pu}(\text{O})$ ,  $\text{SS}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  $\text{U}(\text{O})$ ,  $^{235}\text{U}(\text{O})$ ,  
 $^{236}\text{U}(\text{O})$
- 41 California, University of  
Los Alamos Scientific Laboratory  
P.O. Box 990  
Los Alamos, NM 87544  
 $^{238}\text{Pu}(\text{S})$
- 42 California, University of  
Los Alamos Scientific Laboratory  
P.O. Box 1663  
Los Alamos, NM 87544  
 $^{144}\text{Ce}(\text{O})$ ,  $^{252}\text{Cf}(\text{O})$ ,  $^{257}\text{Fm}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$ ,  
 $^{106}\text{Ru}(\text{O})$ ,  $^{235}\text{U}(\text{O})$ ,  $^{236}\text{U}(\text{O})$ ,  $^{238}\text{U}(\text{O})$ ,  
 $^{238}\text{Pu}(\text{M})$ ,  $\text{Th}(\text{M})$
- 43 California, University of  
405 Hilgard Ave.  
Los Angeles, CA 90024  
 $^{153}\text{Gd}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 44 California, University of  
San Francisco Medical Center  
San Francisco, CA 94122  
 $\text{MCP}(\text{O})$
- 45 California, University of  
School of Medicine  
San Francisco, CA 94122  
 $^{252}\text{Cf}(\text{S})$
- 46 Carnegie-Mellon University  
500 Forbes  
Pittsburgh, PA 15213  
 $^{232}\text{Cf}(\text{S})$
- 47 Chevron Research Company  
555 Market St.  
San Francisco, CA 94120  
 $^3\text{H}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 48 Chicago, University of  
1160 East 55th St.  
Chicago, IL 60615  
 $^{67}\text{Cu}(\text{O})$ ,  $^{106}\text{Ru}(\text{O})$ ,  $^{89}\text{Sr}(\text{O})$
- 49 Children's Medical Center  
300 Longwood Ave.  
Boston, MA 02115  
 $^{103}\text{Ru}(\text{O})$
- 50 Cincinnati General Hospital,  
University of  
234 Goodman St.  
Cincinnati, OH 45202  
 $\text{RSI}(\text{B})$ ,  $^{123}\text{I}(\text{B})$
- 51 Cincinnati, University of  
Cincinnati, OH 45221  
 $^{252}\text{Cf}(\text{O})$ ,  $^{252}\text{Cf}(\text{S})$ ,  $^{67}\text{Ga}(\text{O})$ ,  $^{129}\text{I}(\text{O})$
- 52 Clark University  
Worcester, MA 01610  
 $^{192}\text{Ir}$
- 53 Cleveland Metropolitan General Hospital  
3395 Scranton Rd.  
Cleveland, OH 44109  
 $^{131}\text{I}(\text{O})$
- 54 Cleveland State University  
1983 East 24th St.  
Cleveland, OH 44115  
 $\text{MCP}(\text{O})$
- 55 Cleveland University Hospital  
University Circle  
Cleveland, OH 44106  
 $^{43}\text{K}(\text{O})$
- 56 Colorado State University  
Fort Collins, CO 80521  
 $^{85}\text{Kr}(\text{O})$ ,  $^{237}\text{Np}(\text{O})$
- 57 Colorado, University of  
4200 E. Ninth Ave.  
Denver, CO 80220  
 $^{133}\text{Xe}(\text{O})$

- 58 Columbia Scientific Industries  
3625 Bluestein Blvd.  
Austin, TX 78702  
 $^{252}\text{Cf}(\text{S})$
- 59 Columbia University  
Box 6, Low Library  
New York, NY 10027  
 $^{252}\text{Cf}(\text{S})$ ,  $^{140}\text{Ba}(\text{O})$ ,  $^{90}\text{Sr}(\text{O})$
- 60 Columbia University  
College of Physicians and Surgeons  
168th St.  
New York, NY 10027  
 $\text{Mg}(\text{O})$
- 61 Continental Oil  
P.O. Box 2197  
Houston, TX 77001  
 $^3\text{H}(\text{O})$
- 62 Cook County Hospital  
1903 W. Harrison Street  
Chicago 12, IL 60612  
 $^{47}\text{Ca}(\text{O})$
- 63 Cornell University  
Ithaca, NY 14850  
 $^{252}\text{Cf}(\text{O})$ ,  $^{28}\text{Mg}(\text{B})$
- 64 Cryogenic Rare Gas Laboratories, Inc.  
730 S. 13th St.  
Newark, NJ 07103  
 $^3\text{H}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$
- 65 Cyclotron Corporation  
950 Gilman St.  
Berkeley, CA 94710  
 $^3\text{H}(\text{O})$
- 66 Diagnostic Isotopes  
123 Pleasant Ave.  
Upper Saddle River, NJ 07458  
 $^{67}\text{Ga}(\text{O})$
- 67 Dow Chemical Company  
Rocky Flats Division  
P.O. Box 888  
Golden, CO 80401  
 $\text{Am}(\text{S})$ ,  $^{241}\text{Am}(\text{O})$ ,  $\text{Cm}(\text{S})$ ,  $^{238}\text{Pu}(\text{O})$ ,  
 $^{242}\text{Pu}(\text{O})$ ,  $^{242}\text{Pu}(\text{S})$
- 68 Du Page, College of  
Business Office  
Lambert Road and 22nd St.  
Glen Ellyn, IL 60137  
 $^{239}\text{Pu}(\text{M})$
- 69 Du Pont de Nemours and Company, E. I.  
Savannah River Plant  
Aiken, SC 29801  
 $^{252}\text{Cf}(\text{S})$ ,  $^{252}\text{Cf}(\text{O})$ ,  $^{244}\text{Cm}(\text{O})$ ,  $^{248}\text{Cm}(\text{O})$ ,  
 $^{253}\text{Es}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $^{106}\text{Ru}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  
 $^{90}\text{Y}(\text{O})$ ,  $\text{Pu}(\text{U})$
- 70 Duke University  
Durham, NC 27706  
 $^3\text{H}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 71 Eastern Michigan University  
Ypsilanti, MI 48197  
 $^{252}\text{Cf}(\text{S})$
- 72 Eastern New Mexico University  
Portales, NM 88130  
 $^{252}\text{Cf}(\text{S})$
- 73 Eastman Kodak Company  
Kodak Park Works  
Rochester, NY 14650  
 $^{252}\text{Cf}(\text{S})$
- 74 Eberline Instrument Corporation  
Post Office Box 279  
Santa Fe, NM 87501  
 $^{140}\text{Ba}(\text{O})$ ,  $^{236}\text{Pu}(\text{O})$
- 75 Edgerton, Germeshausen and Grier  
95 Brookline Ave.  
Boston, MA 02215  
 $^{252}\text{Cf}(\text{S})$
- 76 Edgerton, Germeshausen and Grier  
P.O. Box 98  
Goleta, CA 93017  
 $^{252}\text{Cf}(\text{S})$
- 77 Environmental Protection Agency  
Division of Financial Management  
Accounting Operations Office  
Washington, D.C. 20460  
 $^{85}\text{Kr}(\text{O})$
- 78 Fairchild Semiconductors  
P.O. Box 790  
Mountain View, CA 94040  
 $^{85}\text{Kr}(\text{O})$

- 79 Fairchild Semiconductors  
333 Western Ave.  
So. Portland, MA 04106  
 $^{85}\text{Kr}(0)$
- 80 Fairchild Semiconductors  
P.O. Box 908  
Shiprock, NM 87420  
 $^{85}\text{Kr}(0)$
- 81 Florida State University  
Tallahassee, FL 32306  
 $^{67}\text{Ga}(0)$
- 82 Florida, University of  
Gainesville, FL 32601  
 $^{252}\text{Cf}(0)$ ,  $^{244}\text{Cm}(0)$
- 83 Gamma Industries, Inc.  
P.O. Box 2543  
Baton Rouge, LA 70821  
 $^{252}\text{Cf}(S)$ ,  $^{137}\text{Cs}(0)$ , FPSS(0), MCP(0)
- 84 Gamma Industries  
9320 Travenor  
P.O. Box 34526  
Houston, TX 77034  
 $^{241}\text{Am}(0)$ ,  $^{137}\text{Cs}(0)$ , MCP(0),  $^{95}\text{Nb}(0)$ ,  
 $^{89}\text{Sr}(0)$
- 85 General Electric Company  
21800 Tungsten Rd.  
Cleveland, OH 44117  
 $^3\text{H}(0)$ ,  $^{85}\text{Kr}(0)$
- 86 General Electric Company  
Pyrotechnic Installation Bldg.  
John F. Kennedy Space Center  
Florida 32815  
 $^{238}\text{Pu}(M)$
- 87 General Electric Company  
Vallecitos Nuclear Center  
P.O. Box 846, Vallecitos Rd.  
Pleasanton, CA 94566  
 $^{252}\text{Cf}(S)$ ,  $^{238}\text{Pu}(M)$
- 88 General Electric Company  
P.O. Box 254  
San Jose, CA 95103  
 $^{241}\text{Am}(0)$ ,  $^{252}\text{Cf}(0)$ ,  $^{137}\text{Cs}(0)$ ,  $^{237}\text{Np}(0)$ ,  
 $^{235}\text{U}(0)$ ,  $^{238}\text{U}(0)$ ,  $^{133}\text{Xe}(0)$
- 89 General Electric Company  
General Electric Dr.  
Waynesboro, VA 22980  
 $^{85}\text{Kr}(0)$
- 90 General Electric Research &  
Development Center  
Bldg K-1, Box 8  
Schenectady, NY 12301  
RSI(B)
- 91 General Motors Corporation  
Frigidaire Division  
Dayton, OH 45501  
 $^{85}\text{Kr}(0)$
- 92 General Nucleonics Division,  
Tyco Laboratories  
2811 Metropolitan Place  
Pomona, CA 91767  
 $^{85}\text{Kr}(0)$
- 93 General Radioisotope Processing Company  
A Division of General Nuclear, Inc.  
3120 Crow Canyon Road  
San Ramon, CA 94583  
 $^{241}\text{Am}(0)$ ,  $^{137}\text{Cs}(0)$ ,  $^{152+154}\text{Eu}(0)$ ,  
MCP(0),  $^{106}\text{Ru}(0)$ ,  $^{90}\text{Sr}(0)$ ,  $^{95}\text{Zr}(0)$
- 94 George Washington University  
Washington, DC 20006  
 $^{67}\text{Cu}(0)$
- 95 Georgetown University  
3800 Reservoir Rd. NW.  
Washington, DC 20007  
 $^{133}\text{Xe}(0)$
- 96 Georgia Institute of Technology  
225 N. Ave, NW  
Atlanta, GA 30332  
 $^{243}\text{Am}(0)$ ,  $^{252}\text{Cf}(S)$ ,  $^{60}\text{Co}(B)$ ,  $^{85}\text{Kr}(0)$ ,  
 $^{147}\text{Pm}(0)$ ,  $^{106}\text{Ru}(0)$
- 97 Georgia, University of  
Athens, GA 30601  
 $^{252}\text{Cf}(S)$ ,  $^{89}\text{Sr}(0)$
- 98 Gollob Analytical Service Corporation  
47 Industrial Road  
Berkeley Heights, NJ 07922  
 $^{85}\text{Kr}(0)$

- 99 Gulf Energy and Environmental Systems  
P.O. Box 608  
San Diego, CA 92112  
 $^{137}\text{Cs}(0)$ ,  $\text{NU}(0)$ ,  $^{238}\text{Pu}(0)$ ,  $^{232}\text{Th}(0)$ ,  
 $^{233}\text{U}(0)$
- 100 Gulf Research and Development Co.  
P.O. Box 2038  
Pittsburgh, PA 15230  
 $^{252}\text{Cf}(S)$
- 101 Harvard University  
Cambridge, MA 02138  
 $^{252}\text{Cf}(S)$ ,  $^{43}\text{K}(0)$
- 102 Hazen Research Inc.  
4601 Indiana St.  
Golden, CO 80401  
 $^{230}\text{Th}(0)$
- 103 Hazelton Laboratories, Inc.  
9200 Leesburg Pike  
Vienna, VA 22180  
 $^{89}\text{Sr}(0)$
- 104 Health and Safety Laboratory  
USAEC New York Operations Office  
376 Hudson St.  
New York, NY 10014  
 $^{252}\text{Cf}(S)$
- 105 Hughes Aircraft Company  
P.O. Box 92907  
Los Angeles, CA 90009  
 $^{85}\text{Kr}(0)$
- 106 ICI America, Inc.  
Atlas Aerospace Division  
Valley Forge Industrial Park  
Valley Forge, PA 19481  
 $^{85}\text{Kr}(0)$
- 107 ICN-NBCo  
26201 Miles Road  
Cleveland, OH 44128  
 $^{241}\text{Am}(0)$ ,  $^{144}\text{Ce}(0)$ ,  $^{137}\text{Cs}(0)$ ,  $\text{CSI}(0)$ ,  
 $^3\text{H}(0)$ ,  $^{85}\text{Kr}(0)$ ,  $^{33}\text{P}(0)$ ,  $^{106}\text{Ru}(0)$ ,  
 $^{151}\text{Sm}(0)$ ,  $^{90}\text{Sr}(0)$ ,  $\text{Tgs}(0)$
- 108 Illinois, University of  
203 Administration Building E  
Urbana, IL 61803  
 $^{47}\text{Ca}(0)$ ,  $^{129}\text{I}(0)$ ,  $^{106}\text{Ru}(0)$
- 109 Industrial Nucleonics Corporation  
650 Ackerman Road  
Columbus, OH 43202  
 $^{85}\text{Kr}(0)$
- 110 Interex Corporation  
66 Woerd Ave.  
Waltham, MA 02154  
 $^{85}\text{Kr}(0)$
- 111 International Copper Research  
Association, Inc.  
825 Third Ave.  
New York, NY 10022  
 $^{67}\text{Cu}(0)$
- 112 International Nutronics, Inc.  
Los Altos, CA 94022  
 $^{252}\text{Cf}(S)$
- 113 Intetcom. Rad. Tech.  
P.O. Box 20817  
San Diego, CA 92138  
 $^{252}\text{Cf}(S)$
- 114 Isotope Products Laboratories  
404 South Luke St.  
Burbank, CA 91502  
 $^{244}\text{Cm}(0)$ ,  $^{85}\text{Kr}(0)$ ,  $^{147}\text{Pm}(0)$ ,  $^{241}\text{Pu}(0)$ ,  
 $^{89}\text{Sr}(0)$ ,  $^{235}\text{U}(0)$
- 115 Isovac Engineering Company  
6220 San Fernando Rd.  
Glendale, CA 91204  
 $^{85}\text{Kr}(0)$
- 116 Itabira International Company, Ltd.  
640 Fifth Avenue, 18th Floor  
New York, NY 10019  
 $^{67}\text{Ga}(0)$
- 117 ITT Semiconductors, A Division of  
Int'l Telephone and Telegraph  
3301 Electronics Way  
W. Palm Beach, FL 33407  
 $^{85}\text{Kr}(0)$
- 118 Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena, CA 91103  
 $^{238}\text{Pu}(M)$
- 119 Johns Hopkins Medical School  
Baltimore, MD 21218  
 $\text{MCP}(0)$ ,  $^{106}\text{Ru}(0)$

- 120 Kansas State University  
Manhattan, KS 66502  
 $^{252}\text{Cf}(\text{S})$ ,  $^{235}\text{U}(\text{O})$
- 121 Kansas, University of  
Medical Center  
Kansas City, KS 66103  
 $^{89}\text{Sr}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 122 Kentucky, University of  
Lexington, KY 40506  
 $^3\text{H}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 123 Kerr-McGee Corporation  
Kerr-McGee Bldg.  
Oklahoma City, OK 73102  
 $^{252}\text{Cf}(\text{S})$ ,  $^{242}\text{Pu}(\text{O})$ ,  $^{233}\text{U}(\text{O})$
- 124 KMS Fusion, Inc.  
3941 S. Research Park Dr.  
P.O. Box 1567  
Ann Arbor, MI 48106  
 $^3\text{H}(\text{O})$
- 125 Knolls Atomic Power Laboratory  
P.O. Box 1072  
Schenectady, NY 12301  
 $^{252}\text{Cf}(\text{O})$ ,  $^{151}\text{Sm}(\text{O})$
- 126 Lawrence Radiation Laboratory  
Bldg 75, Room 108  
Berkeley, CA 94701  
RSI(B)
- 127 LFE, Environmental Laboratory Division  
2030 Wright Avenue  
Richmond, CA 94804  
 $^{236}\text{Pu}(\text{O})$ ,  $^{242}\text{Pu}(\text{O})$
- 128 Lockheed Aircraft Corporation  
P.O. Box 504  
Missiles and Space  
Sunnyvale, CA 94088  
 $^3\text{H}(\text{O})$
- 129 Lockheed Electronics Company  
16811 El Camino Real  
Houston, TX 77058  
 $^{140}\text{Ba}(\text{O})$
- 130 Loma Linda University Hospital  
Loma Linda, CA 92354  
 $^{133}\text{Xe}(\text{O})$
- 131 Long Island Jewish Hospital  
270-05 76th St.  
New Hyde Park, NY 11040  
 $^{137}\text{Cs}(\text{B})$
- 132 Louisiana State University  
Department of Physics and Astronomy  
Baton Rouge, LA 70803  
 $^{252}\text{Cf}(\text{S})$ , CSI(A)
- 133 Lovelace Clinic  
4800 Gibson Blvd. S.E.  
Albuquerque, NM 87108  
 $^{144}\text{Ce}(\text{O})$ ,  $^{252}\text{Cf}(\text{O})$ ,  $^{137}\text{Cs}(\text{O})$ ,  $^{147}\text{Pm}(\text{O})$ ,  
 $^{238}\text{Pu}(\text{O})$ ,  $^{239}\text{Pu}(\text{O})$ ,  $^{91}\text{Y}(\text{O})$
- 134 Lowell Technological Institute  
One Textile Ave.  
Lowell, MA 01845  
 $^{252}\text{Cf}(\text{O})$ ,  $^{252}\text{Cf}(\text{S})$
- 135 Mallinckrodt Chemical Works  
3600 N. Second St.  
St. Louis, MO 63160  
 $^3\text{H}(\text{O})$ ,  $^{99}\text{Tc}(\text{O})$
- 136 Maryland, University of  
College Park, MD 20742  
 $^{252}\text{Cf}(\text{O})$ , FPSS(O),  $^{129}\text{I}(\text{O})$ , RSI(O),  
SS(O), RSI(A)
- 137 Mason and Hanger  
Salas Mason Company, Inc.  
Pantex Plant  
P.O. Box 647  
Amarillo, TX 79105  
 $^{236}\text{Pu}(\text{O})$
- 138 Massachusetts General Hospital  
Isotope Laboratory  
Boston, MA 02114  
 $^{47}\text{Ca}(\text{O})$
- 139 Massachusetts Institute of Technology  
Box 69  
Cambridge, MA 02139  
 $^{232}\text{Th}(\text{O})$ ,  $^{238}\text{U}(\text{O})$
- 140 Massachusetts, University of  
Amherst, MA 01002  
 $^{252}\text{Cf}(\text{S})$
- 141 Mayo Foundation  
Rochester, MN 55901  
 $^{67}\text{Cu}(\text{O})$

- 142 McDonnell Douglas Astronautics Company  
Western Division  
5301 Bolsa Ave.  
Huntington Beach, CA 92647  
 $\text{FPSS}(0)$ ,  $^{147}\text{Pm}(0)$
- 143 Measurex Corporation  
10475 Imperial Ave.  
Cupertino, CA 95014  
 $^8\text{Kr}(0)$
- 144 Medical College of Georgia  
Talmadge Memorial Hospital  
Augusta, GA 30902  
 $^{257}\text{Fm}(0)$ ,  $^8\text{Kr}(0)$
- 145 Medical Systems Laboratory  
c/o Astro-Nuclear & Medical Labs, Inc.  
19201 S. Vermont Ave.  
Torrance, CA 90502  
 $^3\text{H}(0)$
- 146 Merck and Company  
Rahway, NJ 07065  
 $^{60}\text{Co}(0)$
- 147 Methodist Hospital  
6720 Bertner  
Houston, TX 77025  
 $^{133}\text{Xe}(0)$
- 148 Metropolitan Dade County  
Court House, Flager Street  
Miami, FL 33131  
 $^{67}\text{Ga}(0)$ ,  $^{111}\text{In}(0)$
- 149 Meyer Line  
Brooklyn, NY 11201  
 $\text{Th}(S)$ ,  $\text{U}(S)$
- 150 Michigan State University  
East Lansing, MI 48823  
 $\text{MCP}(0)$
- 151 Michigan, University of  
Ann Arbor, MI 48104  
 $^{239}\text{Pu}(0)$
- 152 Midlands Technical Education Center  
316 Beltline Blvd.  
Columbia, SC 29250  
 $^{252}\text{Cf}(S)$
- 153 Minnesota Mining and Manufacturing Co.  
P.O. Box 3121  
St. Paul, MI 55101  
 $^{137}\text{Cs}(0)$ ,  $^8\text{Kr}(0)$ ,  $\text{MCP}(0)$ ,  $^{95}\text{Nb}(0)$ ,  
 $^{147}\text{Pm}(0)$ ,  $^{238}\text{Pu}(0)$ ,  $^{99}\text{Tc}(0)$
- 154 Minnesota, University of  
402 Morrill Hall  
Minneapolis, MI 55455  
 $^{252}\text{Cf}(S)$
- 155 Mississippi State University  
Box 307  
State College, MS 39762  
 $^{252}\text{Cf}(S)$
- 156 Mississippi, University of  
Jackson, MS 39205  
 $^4\text{K}(0)$ ,  $^8\text{Kr}(0)$ ,  $\text{MCP}(0)$
- 157 Missouri, University of  
General Service Bldg.  
Rolla, MO 65401  
 $^{252}\text{Cf}(S)$
- 158 Monsanto Company  
P.O. Box 1311  
Texas City, TX 77591  
 $^3\text{H}(0)$ ,  $^{133}\text{Xe}(0)$
- 159 Monsanto Research Corporation  
Dayton Laboratory  
1515 Nicholas Rd.  
Dayton, OH 45407  
 $^{241}\text{Am}(0)$ ,  $^{237}\text{Np}(0)$ ,  $^{238}\text{Pu}(0)$
- 160 Monsanto Research Corporation  
**Nuclear Products Dept.**  
Station B, Box 8  
Dayton, OH 45407  
 $^{252}\text{Cf}(S)$ ,  $\text{Pu}(AR)$ ,  $^{238}\text{Pu}(P)$
- 161 Monsanto Research Corporation  
Mound Laboratory  
P.O. Box 32  
Miamisburg, OH 45342  
 $\text{MCP}(0)$ ,  $\text{NU}(0)$ ,  $^{238}\text{Pu}(S)$ ,  $\text{Pu}(U)$
- 162 National Accelerator Laboratory  
P.O. Box 500  
Batavia, IL 60510  
 $^{106}\text{Ru}(0)$

- 163 National Bureau of Standards  
Connecticut Ave. And Van Ness St. N.W.  
Washington, D.C. 20234  
 $^{37}\text{Ar}(0)$ ,  $^{252}\text{Cf}(S)$ ,  $^{129}\text{I}(0)$ ,  $^{133}\text{Xe}(0)$
- 164 National Bureau of Standards  
Connecticut Ave. and Van Ness St. N.W.  
Washington, D.C. 20234  
 $^{37}\text{Ar}(0)$ ,  $^{252}\text{Cf}(0)$ ,  $^{129}\text{I}(0)$ ,  $^{239}\text{Pu}(0)$ ,  
 $^{229}\text{Th}(0)$ ,  $^{235}\text{U}(0)$ ,  $^{133}\text{Xe}(0)$
- 165 National Lead Company  
Fernald, OH  
 $\text{Th}(S)$ ,  $\text{U}(S)$
- 166 National Semiconductor Corporation  
2900 Semiconductor Dr.  
Santa Clara, CA 95051  
 $^{85}\text{Kr}(0)$
- 167 New England Nuclear Corporation  
575 Albany St.  
Boston, MA 02118  
 $^{241}\text{Am}(0)$ ,  $^{137}\text{Cs}(0)$ ,  $\text{CSI}(0)$ ,  $^{153}\text{Gd}(0)$ ,  
 $^3\text{H}(0)$ ,  $^{129}\text{I}(0)$ ,  $^{85}\text{Kr}(0)$ ,  $\text{MCP}(0)$ ,  $^{33}\text{P}(0)$ ,  
 $^{103}\text{Ru}(0)$ ,  $^{106}\text{Ru}(0)$ ,  $^{151}\text{Sm}(0)$ ,  $^{89}\text{Sr}(0)$ ,  
 $^{90}\text{Sr}(0)$ ,  $^{99}\text{Tc}(0)$
- 168 New Hampshire, University of  
Parsons Hall  
Durham, NH 03824  
 $\text{RSI}(B)$ ,  $^{235}\text{U}(0)$
- 169 New Jersey, College of Medicine and  
Dentistry  
100 Bergen St.  
Newark, NJ 07103  
 $^{85}\text{Kr}(0)$
- 170 New Mexico, University of  
Albuquerque, NM 87103  
 $^{133}\text{Xe}(0)$
- 171 New York, State University of  
3534 Main St.  
Buffalo, NY 14214  
 $^{233}\text{U}(0)$ ,  $\text{RSI}(0)$
- 172 New York State, University of  
Department of Earth & Space Science  
Stony Brook, NY 11790  
 $\text{RSI}(B)$
- 173 New York, State University of  
Upstate Medical Center  
766 Irving Ave.  
Syracuse, NY 13210  
 $^{203}\text{Pb}(0)$ ,  $^{133}\text{Xe}(0)$
- 174 North Carolina, University of  
Chapel Hill, NC 27514  
 $\text{FPSS}(0)$
- 175 Northern Illinois University  
1425 W. Lincoln Highway  
DeKalb, IL 60115  
 $\text{CSI}(A)$
- 176 Nuclear Dynamics  
2614 Seaman Ave.  
El Monte, CA 91733  
 $^3\text{H}(0)$
- 177 Nuclear Environmental Engineering, Inc.  
P.O. Box 58866  
Houston, TX 77058  
 $^{241}\text{Am}(0)$ ,  $^3\text{H}(0)$
- 178 Nuclear Materials and Equipment Corp.  
609 Warren Ave.  
Apollo, PA 15613  
 $^{241}\text{Am}(0)$ ,  $^{238}\text{Pu}(0)$ ,  $^{106}\text{Ru}(0)$ ,  $\text{Pu}(R)$
- 179 Nuclear Radiation Developments, Inc.  
2937 Alt Blvd., North  
Grand Island, NY 14072  
 $^{241}\text{Am}(0)$ ,  $^{210}\text{Po}(M)$
- 180 Nuclear Research Corporation  
Street Rd. and Second St. Pike  
Southampton, PA 18966  
 $^{239}\text{Pu}(S)$ ,  $^{106}\text{Ru}(0)$
- 181 Nuclear Sources and Services  
P.O. Box 14023  
Houston, TX 77021  
 $^{152+154}\text{Eu}(0)$ ,  $^3\text{H}(0)$ ,  $^{85}\text{Kr}(0)$ ,  $^{147}\text{Pm}(0)$
- 182 Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, TN 37830  
 $^{253}\text{Es}(0)$ ,  $^{67}\text{Ga}(0)$ ,  $^{153}\text{Gd}(0)$ ,  $\text{MCP}(0)$ ,  
 $^{147}\text{Nd}(0)$ ,  $^{203}\text{Pb}(0)$
- 183 Oak Ridge National Laboratory  
Isotope Division  
Oak Ridge, TN 37830  
 $^{252}\text{Cf}(S)$ ,  $^{137}\text{Cs}(B)$ ,  $^{90}\text{Sr}(B)$

- 184 Oak Ridge National Laboratory  
Oak Ridge, TN 37830  
 $^{252}\text{Cf}(\text{S})$ ,  $^{238}\text{Pu}(\text{S})$
- 185 Oak Ridge National Laboratory  
Isotope Sales Dept.  
Oak Ridge, TN 37830  
 $^{252}\text{Cf}(\text{O})$
- 186 Oak Ridge Technical Enterprises Corp.  
102 Midland Road  
Oak Ridge, TN 37830  
 $^{129}\text{I}(\text{O})$
- 187 Oberlin College  
Oberlin, OH 44074  
 $^{89}\text{Sr}(\text{O})$
- 188 Ohio State University  
190 North Oval Dr.  
Columbus, OH 43210  
 $^{252}\text{Cf}(\text{S})$ , MCP(O) RSI(B)
- 189 Ohio State University  
Research Foundation  
1314 Kinnear Rd.  
Columbus, OH 43212  
 $^{181}\text{Hf}(\text{O})$ ,  $^{89}\text{Sr}(\text{O})$
- 190 Ohio University  
Athens, OH 45701  
 $^{252}\text{Cf}(\text{S})$ ,  $^3\text{H}(\text{O})$
- 191 Orange, County of  
P.O. Box 564  
Room 362, Engineering Bldg.  
Santa Ana, CA 92702  
 $^{133}\text{Xe}(\text{O})$
- 192 Oregon Medical School., University of  
3181 S.W. Sam Jackson Park Rd.  
Portland, OR 97201  
 $^{133}\text{Xe}(\text{O})$
- 193 Oregon State University  
Corvallis, OR 97330  
 $^{235}\text{U}(\text{O})$ ,  $^{238}\text{U}(\text{O})$
- 194 Palmdale General Hospital  
Palmdale, CA 93550  
 $^{133}\text{Xe}(\text{O})$
- 195 Panametrics, Inc.  
221 Crescent St.  
Waltham, MA 02154  
 $^3\text{H}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$
- 196 Parkwell Laboratories, Inc.  
429 North High St.  
Croton, OH 43013  
 $^{241}\text{Am}(\text{O})$ ,  $^{137}\text{Cs}(\text{O})$ ,  $^{238}\text{Pu}(\text{O})$
- 197 Pennsylvania, Hospital of  
the University of  
3400 Soryce  
Philadelphia, PA 19104  
 $^{252}\text{Cf}(\text{S})$
- 198 Pennsylvania State University  
207 Old Main Bldg.  
University Park, PA 16802  
 $^{252}\text{Cf}(\text{S})$ ,  $^{60}\text{Co}(\text{B})$ ,  $^{129}\text{I}(\text{O})$
- 199 Pennsylvania, University of  
3025 Walnut St.  
Philadelphia, PA 19104  
 $^{106}\text{Ru}(\text{O})$
- 200 Penrose Hospital  
2215 North Cascade  
Colorado Springs, CO 80907  
 $^{133}\text{Xe}(\text{O})$
- 201 Pittsburgh, University of  
Pittsburgh, PA 15213  
 $^{131}\text{I}(\text{O})$ ,  $^{89}\text{Sr}(\text{O})$ ,  $^{235}\text{U}(\text{O})$ ,  $^{238}\text{U}(\text{O})$
- 202 Potter and Brumfield  
Princeton, IN 47570  
 $^{85}\text{Kr}(\text{O})$
- 203 Princeton University  
James Forrestal Campus  
Princeton, NJ 08540  
 $^{133}\text{Xe}(\text{O})$
- 204 Purdue University  
Pharmacy Annex  
Lafayette, IN 47907  
CSI(A),  $^{181}\text{Hf}(\text{O})$ , Nu(O), RSI(A)
- 205 Radiation Dynamics, Inc.  
1800 Shames Dr.  
Westberry, NY 11590  
 $^{237}\text{Np}(\text{O})$ ,  $^{231}\text{Pa}(\text{M})$ ,  $^3\text{H}(\text{O})$ , Tgs(O)

- 206 Ray Industries, Inc.  
403 Howell Way  
Edmonds, WA 98020  
 $^{203}\text{Pb}(\text{H})$ ,  $^{230}\text{Th}(\text{H})$
- 207 Reactor Experiments, Inc.  
963 Terminal Way  
San Carlos, CA 94070  
 $^{252}\text{Cf}(\text{S})$ ,  $^{238}\text{U}(\text{O})$
- 208 Rensselaer Polytechnic Institute  
Service Bldg.  
Troy, NY 12180  
RSI(B)
- 209 Republic Steel Corporation  
221 East 131st St.  
Cleveland, OH 44108  
 $^{252}\text{Cf}(\text{S})$
- 210 Resalab  
Energy Conversion Department  
30 Pershing Rd.  
Sunnyvale, CA 94086  
 $^{238}\text{Pu}(\text{M})$
- 211 Reynolds Electric Engineering Company  
P.O. Box 14400  
Las Vegas, NV 89114  
 $^{236}\text{Pu}(\text{O})$
- 212 Richmond Laboratories, Inc.  
P.O. Box 3382  
Augusta, GA 30904  
 $^{252}\text{Cf}(\text{S})$
- 213 Rigaku/USA  
Lakeside Office Park, Door #16  
607 North Ave.  
Wakefield, MA 01880  
Th(M)
- 214 Rochester, University of  
575 Elmwood Ave.  
Rochester, NY 14627  
 $^{131}\text{I}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 215 Rutgers, The State University  
New Brunswick, NJ 08903  
 $^{252}\text{Cf}(\text{S})$ ,  $^{89}\text{Sr}(\text{O})$
- 216 Saint Luke's Presbyterian Medical  
Center  
1753 West Congress Parkway  
Chicago, IL 60612  
 $^{18}\text{F}(\text{A})$ ,  $^{52}\text{Fe}(\text{A})$ , CSI(A)
- 217 Saint Vincent's Hospital  
2131 W. Third St.  
Los Angeles, CA 90057  
 $^{133}\text{Xe}(\text{O})$
- 218 Salk Institute  
P.O. Box 1809  
San Diego, CA 92112  
 $^3\text{H}(\text{O})$
- 219 Sanders Nuclear Corporation  
95 Canal St.  
Nashua, NH 03060  
 $^{252}\text{Cf}(\text{S})$
- 220 Sandia Corporation  
Sandia Laboratories  
Kirtland Air Force Base (East)  
Bldg. 869  
Albuquerque, NM 87115  
 $^{238}\text{Pu}(\text{M})$ ,  $\text{UO}_2(\text{M})$ , Th(M), Du(M)
- 221 Sam Houston State University  
Huntsville, TX 77340  
 $^{252}\text{Cf}(\text{S})$
- 222 Savannah River Plant  
E.I. DuPont de Nemours & Co.  
Ounbarton, SC  
 $^{252}\text{Cf}(\text{B})$
- 223 Savannah River Laboratory  
Aiken, SC 29801  
 $^{252}\text{Cf}(\text{S})$
- 224 Schlumberger Technology Corporation  
Old Quarry Rd.  
P.O. Box 307  
Ridgefield, CT 06877  
 $^3\text{H}(\text{O})$
- 225 Schwarz Bio-Research, Inc.  
Mountain View Ave.  
Orangeburg, NY 10962  
 $^3\text{H}(\text{O})$ ,  $^{33}\text{P}(\text{O})$
- 226 Scripps Clinic and Research Foundation  
476 Prospect St.  
La Jolla, CA 92037  
 $^{133}\text{Xe}(\text{O})$
- 227 Self-Powered Lighting, Ltd.  
629 5th Ave.  
Pelham, NY 10830  
 $^3\text{H}(\text{O})$

- 228 Sloan-Kettering Institute  
425 East 68th St.  
New York, NY 10021  
 $^{47}\text{Ca}(0)$ ,  $^{252}\text{Cf}(S)$ ,  $^{133}\text{Xe}(0)$ ,  $^{95}\text{Zr}(0)$
- 229 Southeastern Missouri State College  
Cape Girardeau, MO 63701  
 $^{252}\text{Cf}(S)$
- 230 Southern California, University of  
University Park  
Los Angeles, CA 90007  
 $\text{MCP}(0)$
- 231 Stanford University  
P.O. Box 4409  
Stanford, CA 94305  
 $^{129}\text{I}(0)$ ,  $^{238}\text{U}(0)$
- 232 Strong Memorial Hospital  
575 Elwood Ave.  
Rochester, NY 14603  
 $^{28}\text{Mg}(B)$
- 233 Syntex Corporation  
3401 Hillview Ave.  
Palo Alto, CA 94304  
 $^3\text{H}(0)$
- 234 Technical Operations  
South Ave.  
Burlington, MA 01803  
 $^{137}\text{Cs}(0)$ ,  $\text{FPSS}(0)$
- 235 Tempset, Inc.  
1251 Grover Rd.  
St. Louis, MO 63125  
 $^{85}\text{Kr}(0)$
- 236 Tennessee Technological Institute  
Cookeville, TN 38501  
 $^{252}\text{Cf}(S)$
- 237 Tennessee, University of  
865 Jefferson Ave.  
Memphis, TN 38103  
 $^{252}\text{Cf}(S)$
- 238 Tennessee, University of  
Knoxville, TN 37916  
 $^{252}\text{Cf}(0)$
- 239 Tennessee Valley Authority  
Wilson Dam, AL 35661  
 $^{33}\text{P}(0)$
- 240 Tennessee, University of (AEC)  
1299 Bethel Valley Rd.  
Oak Ridge, TN 37830  
 $^{28}\text{Mg}(B)$
- 241 Texas A and M University  
P.O. Box 44  
College Station, TX 77843  
 $^{252}\text{Cf}(0)$ ,  $^{230}\text{Th}(0)$
- 242 Texas Instruments, Inc.  
Science Services Division  
P.O. Box 5621  
Dallas, TX 75222  
 $^3\text{H}(0)$ ,  $^{85}\text{Kr}(0)$
- 243 Texas Instruments, Inc.  
P.O. Box 66027 M/S615  
Houston, TX 77006  
 $^{85}\text{Kr}(0)$
- 244 Texas Technological College  
Texas Agricultural Experiment Station  
Lubbock, TX 79409  
 $^{91}\text{Y}(0)$
- 245 Texas Nuclear  
P.O. Box 9627  
Austin, TX 78766  
 $^{252}\text{Cf}(S)$
- 246 Texas Woman's University  
Box 2906, TWU Station  
Benton, TX 76204  
 $^{89}\text{Sr}(0)$
- 247 Texas, University of  
Austin, TX 78712  
 $^{252}\text{Cf}(0)$ ,  $^{252}\text{Cf}(S)$
- 248 Texas, University of  
Nuclear Medicine Service  
Galveston, TX 77550  
 $^{43}\text{K}(0)$
- 249 Texas, University of  
M.D. Anderson Hospital & Tumor  
Institute  
6723 Bertner Ave.  
Houston, TX 77025  
 $^{252}\text{Cf}(S)$ ,  $^{67}\text{Gd}(0)$

- 250 3M Company  
Nuclear Products  
Twin Cities Arsenal  
New Brighton, NM 55401  
 $^{147}\text{Pm}(\text{M})$ ,  $^{147}\text{Pm}(\text{P})$
- 251 Transition Electronics Corporation  
168 Albion St.  
Wakefield, MA 01880  
 $^8\text{Kr}(\text{O})$
- 252 Trio-Tech Inc.  
A Division of Tracer Flo  
2435 N. Naomi  
Burbank, CA 91504  
 $^8\text{Kr}(\text{O})$
- 253 Tulane University  
New Orleans, LA 70118  
 $^{106}\text{Ru}(\text{O})$
- 254 Tuskegee Institute  
P.O. Box 1239  
Tuskegee, AL 36088  
 $^{241}\text{Am}(\text{O})$
- 255 Union Carbide Corporation,  
Isotope Sales Division  
P.O. Box X  
Oak Ridge, TN 37830  
 $^{241}\text{Am}(\text{P})$ ,  $^{147}\text{Pm}(\text{P})$
- 256 Union Carbide Corporation,  
Nuclear Division  
Oak Ridge Gaseous Diffusion Plant  
P.O. Box P  
Oak Ridge, TN 37830  
 $^{252}\text{Cf}(\text{O})$ ,  $^{241}\text{Pu}(\text{O})$ ,  $^{147}\text{Pm}(\text{P})$
- 257 Union Carbide Corporation,  
Nuclear Division  
Oak Ridge National Laboratory  
P.O. Box X  
Oak Ridge, TN 37830  
 $^{241}\text{Am}(\text{O})$ ,  $^{243}\text{Am}(\text{O})$ ,  $^{249}\text{Bk}(\text{O})$ ,  $^{144}\text{Ce}(\text{O})$ ,  
 $^{249}\text{Cf}(\text{O})$ ,  $^{252}\text{Cf}(\text{O})$ ,  $^{252}\text{Cf}(\text{S})$ ,  $\text{Cm}(\text{S})$ ,  
 $^{243}\text{Cm}(\text{O})$ ,  $^{244}\text{Cm}(\text{O})$ ,  $^{248}\text{Cm}(\text{O})$ ,  $^{60}\text{Co}(\text{S})$ ,  
 $^{137}\text{Cs}(\text{O})$ ,  $^{253}\text{Es}(\text{O})$ ,  $^{254}\text{Es}(\text{O})$ ,  
 $^{152+154}\text{Eu}(\text{O})$ ,  $^{153}\text{Gd}(\text{O})$ ,  $^3\text{H}(\text{O})$ ,  $^{129}\text{I}(\text{O})$ ,  
 $\text{MCP}(\text{O})$ ,  $^{95}\text{Nb}(\text{O})$ ,  $^{237}\text{Np}(\text{H})$ ,  $^{147}\text{Pm}(\text{O})$ ,  
 $^{236}\text{Pu}(\text{O})$ ,  $^{239}\text{Pu}(\text{M})$ ,  $^{239}\text{Pu}(\text{O})$ ,  $^{240}\text{Pu}(\text{O})$ ,  
 $^{241}\text{Pu}(\text{M})$ ,  $^{241}\text{Pu}(\text{O})$ ,  $^{242}\text{Pu}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  
 $^{106}\text{Ru}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  $^{229}\text{Th}(\text{M})$ ,  $^{229}\text{Th}(\text{O})$ ,  
 $^{234}\text{U}(\text{M})$ ,  $^{255}\text{U}(\text{S})$ ,  $^{236}\text{U}(\text{O})$ ,  $^{238}\text{U}(\text{O})$ ,  
 $\text{UO}_2(\text{M})$ ,  $^{133}\text{Xe}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 258 Union Carbide  
Plant X-10  
Oak Ridge, TN 37830  
 $^{28}\text{Mg}(\text{B})$
- 259 Union Carbide Corporation,  
Nuclear Division  
Y-12 Plant  
P.O. Box Y  
Oak Ridge, TN 37830  
 $^{252}\text{Cf}(\text{O})$ ,  $^{153}\text{Gd}(\text{O})$ ,  $\text{MCP}(\text{O})$ ,  $\text{NU}(\text{O})$ ,  
 $^{33}\text{P}(\text{O})$ ,  $^{147}\text{Pm}(\text{O})$ ,  $\text{SS}(\text{O})$ ,  $^{235}\text{U}(\text{O})$
- 260 Union Carbide Corporation  
Sterling Forest Research Center  
P.O. Box 234  
Tuxedo, NY 10987  
 $^{137}\text{Cs}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $^{99}\text{Tc}(\text{O})$
- 261 Unit Process Assemblies, Inc.  
53-15 37th Ave.  
Woodside, NY 11377  
 $^{147}\text{Pm}(\text{O})$ ,  $^{90}\text{Sr}(\text{O})$
- 262 United Aircraft Corp.  
Silver Lane  
East Hartford, CT 06118  
 $^{153}\text{Gd}(\text{O})$ ,  $\text{MCP}(\text{O})$
- 263 United Nuclear Corporation  
Chemical Operations  
Route 21-A  
Hematite, MO 63047  
 $^{252}\text{Cf}(\text{S})$
- 264 United Nuclear Corporation  
Recovery Operations  
Wood River Junction, RI 02894  
 $^{252}\text{Cf}(\text{S})$
- 265 United Nuclear Industries, Inc.  
Box 490  
Richland, WA 99352  
 $^{147}\text{Pm}(\text{H})$ ,  $^{147}\text{Pm}(\text{P})$ ,  $^{210}\text{Po}(\text{H})$
- 266 United States Air Force  
Kirtland AFB, NM 87117  
 $\text{Th}(\text{M})$
- 267 United States Air Force  
McClellan Air Force Base, CA 95652  
 $^{37}\text{Ar}(\text{O})$ ,  $^{67}\text{Cu}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$

- 268 United States Army  
Materials and Mechanics Research Center  
Watertown, MA 02172  
 $^{252}\text{Cf}(\text{S})$
- 269 United States Army  
Picatinny Arsenal  
Dover, NJ 07801  
 $^{252}\text{Cf}(\text{S})$
- 270 United States Army  
Frankford Arsenal  
Bridge and Tacony Streets  
Philadelphia, PA 19137  
 $^{85}\text{Kr}(\text{O})$
- 271 United States Army  
Walter Reed Army Medical Center  
Washington, D.C. 20012  
 $^{133}\text{Xe}(\text{O})$
- 272 United States Atomic Energy Commission  
376 Hudson St., Fifth Floor  
New York, NY 10014  
 $^{140}\text{Ba}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 273 United States Atomic Energy Commission  
Schenectady Naval Reactors Office  
P.O. Box 1069  
Schenectady, NY 12301  
 $^{252}\text{Cf}(\text{O})$ ,  $^{237}\text{Np}(\text{O})$ ,  $^{151}\text{Sm}(\text{O})$ ,  $\text{Tgs}(\text{O})$ ,  
 $^{238}\text{U}(\text{O})$
- 274 United States Atomic Energy Commission  
Washington, D.C. 20545  
 $^{137}\text{Cs}(\text{O})$ ,  $\text{FPSS}(\text{O})$ ,  $^{238}\text{U}(\text{O})$
- 275 United States Bureau of Mines  
1605 Evans Ave  
Reno, NV 89505  
 $^{252}\text{Cf}(\text{S})$ ,  $\text{Th}(\text{M})$
- 276 United States Department of Agriculture  
State University Station  
Fargo, ND 58102  
 $^{238}\text{Pu}(\text{O})$ ,  $^{60}\text{Co}(\text{B})$
- 277 United States Department  
of Agriculture  
Oxford, MS 38655  
 $^{252}\text{Cf}(\text{S})$
- 278 United States Department of Interior  
Bureau of Mines  
Bldg. 20, Federal Center  
Denver, CO 80225  
 $^{186}\text{Re}(\text{O})$ ,  $\text{MCP}(\text{O})$
- 279 United States Department of Interior  
Geological Survey  
Branch of Budget and Finance  
Washington, D.C. 20000  
 $^{252}\text{Cf}(\text{S})$
- 280 United States National Aeronautics  
and Space Adm.  
Lewis Research Center  
21000 Brookpark Rd.  
Cleveland, OH 44135  
 $^3\text{H}(\text{O})$ ,  $^{95}\text{Nb}(\text{O})$ ,  $^{233}\text{U}(\text{O})$
- 281 United States National Aeronautics  
and Space Adm.  
Goddard Space Flight Center  
Glendale Rd.  
Greenbelt, MD 20771  
 $^{252}\text{Cf}(\text{S})$
- 282 United States National Aeronautics  
and Space Adm.  
George C. Marshall Space Flight Center  
Huntsville, AL 35812  
 $^{67}\text{Cu}(\text{O})$ ,  $\text{MCP}(\text{O})$
- 283 United States National Aeronautics  
and Space Adm.  
Langley Research Center  
Langley Station  
Hampton, VA 23365  
 $\text{CSI}(\text{O})$
- 284 United States National Aeronautics  
and Space Adm.  
Manned Spacecraft Center  
Houston, TX 77058  
 $^{140}\text{Ba}(\text{O})$
- 285 United States National Aeronautics  
and Space Adm.  
Ames Research Center  
Moffett Field, CA 94035  
 $\text{FPSS}(\text{O})$
- 286 United States National Aeronautics  
and Space Adm.  
Jet Propulsion Laboratory  
Pasadena, CA 91103  
 $^{252}\text{Cf}(\text{S})$
- 287 United States Naval Academy  
Annapolis, MD 21402  
 $^{252}\text{Cf}(\text{S})$

- 288 United States Navy  
Naval Weapons Laboratory  
Dahlgren, VA 22448  
 $^{85}\text{Kr}(0)$
- 289 United States Navy  
Naval Facilities Engineering Command  
Washington Navy Yard  
Washington, D.C. 20390  
 $^{90}\text{Sr}(0)$
- 290 United States Navy  
Naval Research Laboratory  
Washington, D.C. 20390  
 $^3\text{H}(0)$ ,  $\text{MCP}(0)$ ,  $\text{Tgs}(0)$ ,  $^{236}\text{U}(0)$
- 291 United States Public Health  
Environmental Protect  
Accounting Operations Office,  
Durham Research Triangle Park, NC 27711  
 $^{243}\text{Am}(0)$ ,  $^{85}\text{Kr}(0)$ ,  $^{89}\text{Sr}(0)$
- 292 United States Public Health Service  
P.O. Box 61  
Montgomery, AL 36101  
 $\text{MCP}(0)$
- 293 United States Public Health Service  
National Institutes of Health,  
Isotope Laboratory Bldg. 21  
Bethesda, MD 20014  
 $^{47}\text{Ca}(0)$ ,  $\text{MCP}(0)$
- 294 United States Public Health  
Service Hospital  
15th Ave. and Lake St.  
San Francisco, CA 94118  
 $^{153}\text{Gd}(0)$
- 295 United States Radium Corporation  
4150 Old Berwick Rd.  
P.O. Box 380  
Bloomsburg, PA 17815  
 $^3\text{H}(0)$
- 296 United States Testing Company  
2800 George Washington Way  
Richland, WA 99352  
 $^{137}\text{Cs}(\text{H})$ ,  $^{131}\text{I}(\text{H})$ ,  $\text{Sr}(\text{H})$ ,  $^{90}\text{Y}(\text{H})$
- 297 Unitrode Corporation  
580 Pleasant St.  
Watertown, MA 01970  
 $^{85}\text{Kr}(0)$
- 298 UT-AEC  
Agriculture' Research Laboratory  
1299 Bethel Valley Rd.  
Oak Ridge, TN 37830  
 $^{47}\text{Ca}(0)$
- 299 Utah, University of  
Purchasing Department  
Salt Lake City, UT 84112  
 $^{252}\text{Cf}(\text{S})$ ,  $^{243}\text{Cm}(0)$ ,  $^{237}\text{Np}(0)$ ,  $^{238}\text{Pu}(0)$ ,  
 $^{103}\text{Ru}(0)$ ,  $^{133}\text{Xe}(0)$
- 300 VA, Edward Hines, Jr. Hospital  
Hines, IL 60141  
 $^{252}\text{Cf}(\text{S})$
- 301 Vanderbilt University  
Business Managers Office  
Nashville, TN 37203  
 $^{241}\text{Am}(0)$ ,  $\text{CSI}(0)$ ,  $\text{MCP}(0)$ ,  $^{133}\text{Xe}(0)$
- 302 Veterans Administration Center  
Wood, WI 53193  
 $^{43}\text{K}(0)$ ,  $^{133}\text{Xe}(0)$
- 303 Veterans Administration Hospita  
1055 Clermont St.  
Denver, CO 80220  
 $^{28}\text{Mg}(\text{B})$ ,  $^{133}\text{Xe}(0)$
- 304 Veterans Administration Hospital  
Gainesville, FL 32601  
 $\text{MCP}(0)$ ,  $^{133}\text{Xe}(0)$
- 305 Veterans Administration Hospital  
Newington, CT 06111  
 $\text{MCP}(0)$ ,  $^{28}\text{Mg}(\text{B})$
- 306 Veterans Administration Hospital  
3801 Junipero Serra Blvd.  
Palo Alto, CA 94304  
 $^{67}\text{Ga}(0)$ ,  $^{203}\text{Pb}(0)$
- 307 Virginia Hospital, University of  
Charlottesville, VA 22901  
 $^{28}\text{Mg}(\text{B})$ ,  $^{133}\text{Xe}(0)$
- 308 Virginia Polytechnic Institute  
Blacksburg, VA 24061  
 $^{230}\text{Th}(0)$ ,  $^{235}\text{U}(0)$

- 309 Virginia State College  
Physics Department  
Hunter-McDaniel Bldg  
Petersburg, VA 23803  
 $^{239}\text{Pu}(\text{M})$
- 310 Washington Hospital Center  
110 Irving Ave. N.W.  
Washington, D.C. 20014  
 $^{47}\text{Ca}(\text{O})$
- 377 Washington State University  
Comptroller's Office  
Pullman, WA 99163  
 $^{252}\text{Cf}(\text{S})$ ,  $^3\text{H}(\text{P})$
- 312 Washington University  
Lindell and Skinker St.  
St. Louis, MO 63155  
 $^{114}\text{In}(\text{O})$ ,  $^{235}\text{U}(\text{O})$ ,  $^{144}\text{I}(\text{O})$ ,  $^{28}\text{Mg}(\text{B})$
- 313 Washington, University of  
Quaternary Research Oceanography  
Seattle, WA 98105  
 $^{116}\text{In}(\text{I})$ ,  $^{110}\text{Ag}(\text{I})$ ,  $^{252}\text{Cf}(\text{S})$ ,  $\text{RSI}(\text{A})$
- 314 Wayne State University  
Detroit, MI 48202  
 $^{252}\text{Cf}(\text{S})$ ,  $^{129}\text{I}(\text{O})$
- 315 Western Electric Company  
100 Central Ave.  
Kearny, NJ 07032  
 $^{137}\text{Cs}(\text{O})$
- 316 Western Electric Company  
P.O. Box 241  
Reading, PA 19603  
 $^{85}\text{Kr}(\text{O})$
- 317 Western Electric Company, Inc.  
P.O. Box 1409  
Lawrence, MA 01842  
 $^{85}\text{Kr}(\text{O})$
- 318 Westinghouse Electric Company  
Nuclear Instrument and Control Div.  
1111 Schilling Road  
Hunt Valley, MD 21030  
 $^{232}\text{Th}(\text{H})$
- 319 Westinghouse Electric Corporation  
P.O. Box 284  
Elmira, NY 14902  
 $^{235}\text{U}(\text{O})$
- 320 Westinghouse Electric Corporation  
Astronuclear Laboratory  
811 'Clairton Rd.  
St. Rd. 51  
Large, PA 15025  
 $^{60}\text{Co}(\text{S})$
- 321 Westinghouse Electric Corporation  
Research & Development Center  
Beulah Rd., Churchill Borough  
Pittsburgh, PA 15235  
 $^{10}\text{B}(\text{H})$ ,  $^{237}\text{Np}(\text{H})$ ,  $^{232}\text{Th}(\text{H})$ ,  $\text{Th-Y}(\text{H})$ ,  
 $^{238}\text{U}(\text{O})$
- 322 Westinghouse Electric Corporation  
Bettis Atomic Power Laboratory  
P.O. Box 79  
West Mifflin, PA 15122  
 $^{252}\text{Cf}(\text{O})$ ,  $^{137}\text{Cs}(\text{O})$ ,  $^{181}\text{Hf}(\text{O})$ ,  $^{233}\text{U}(\text{O})$ ,  
 $^{234}\text{U}(\text{O})$
- 323 Westinghouse Hanford Company (HEDL)  
P.O. Box 1970  
Richland, WA 99352  
 $^{41}\text{Ar}(\text{U})$ ,  $^{140}\text{Ba}(\text{O})$ ,  $^{252}\text{Cf}(\text{O})$ ,  $^{244}\text{Cm}(\text{O})$ ,  
 $^{237}\text{Np}(\text{O})$ ,  $^{236}\text{Pu}(\text{O})$ ,  $^{89}\text{Sr}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$ ,  
 $^{91}\text{Y}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 324 William Beaumont Hospital  
3601 W. Thirteen Mile Rd.  
Royal Oak, MI 48067  
 $^{85}\text{Kr}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 325 Wisconsin, University of Milwaukee  
2150 N. Prospect Ave.  
Milwaukee, WI 53202  
 $^3\text{H}(\text{O})$ ,  $\text{MCP}(\text{O})$ ,  $^{235}\text{U}(\text{O})$ ,  $^{85}\text{Kr}(\text{O})$
- 326 Wisconsin, University of  
Oshkosh, WI 54904  
 $^{252}\text{Cf}(\text{S})$
- 327 Wyoming, University of  
Laramie, WY 82070  
 $^{252}\text{Cf}(\text{S})$
- 328 Yale-New Haven Hospital  
P.O. Box 1001  
New Haven, CT 06504  
 $^{103}\text{Ru}(\text{O})$
- 329 Yale University  
20 Ashmun St.  
New Haven, CT 06520  
 $^{85}\text{Kr}(\text{O})$ ,  $^{103}\text{Ru}(\text{O})$ ,  $\text{RSI}(\text{B})$

B. FOREIGN

AUSTRALIA

- 330 Australian Consulate General  
636 Fifth Ave.  
New York, NY 10020  
 $^{238}\text{Pu}(0)$ ,  $^{99}\text{Tc}(0)$ ,  $^{230}\text{Th}(0)$ ,  $^{235}\text{U}(0)$
- 331 Australian National University  
P.O. Box 4  
Canberra, A.C.T., Australia  
 $^{37}\text{Ar}(0)$

AUSTRIA

- 332 Austrian Embassy  
2343 Massachusetts Ave. N.W.  
Washington, D.C. 20008  
 $^{240}\text{Pu}(0)$
- 333 International Atomic Energy Agency  
Kaerntnerring 11-13  
A-1010 Vienna, Austria  
 $^{252}\text{Cf}(S)$ ,  $^{235}\text{U}(0)$ ,  $^{33}\text{P}(0)$ ,  $^{239}\text{Pu}(0)$ ,  
 $^{240}\text{Pu}(0)$ ,  $^{235}\text{U}(0)$

BELGIUM

- 334 EURATOM  
51-53 Rue Belliard  
Brussels, Belgium  
 $^{236}\text{Pu}(0)$ ,  $^{239}\text{Pu}(0)$ ,  $^{240}\text{Pu}(0)$ ,  
 $^{241}\text{Pu}(0)$ ,  $^{233}\text{U}(0)$ ,  $^{235}\text{U}(0)$ ,  $^{236}\text{U}(0)$
- 335 European Atomic Energy Commission  
Central Bureau for Nuclear  
Measurements  
Geel, Belgium  
 $^{243}\text{Am}(0)$ ,  $^{244}\text{Cm}(0)$
- 336 IRE, Institut National des  
Radioelements  
Ave. Eugene Plasky, 144  
1040 Brussels, Belgium  
 $^{85}\text{Kr}(0)$ ,  $^{147}\text{Pm}(0)$ ,  $^{133}\text{Xe}(0)$
- 337 Liege, Universite de  
2 Rue Armand Stevart  
Liege, Belgium  
 $^{243}\text{Am}(0)$

BRAZIL

- 338 Brazilian Center for Physical Research  
Rio de Janeiro, Brazil  
 $^{137}\text{Cs}(0)$

- 339 Comissao Nacional de Energia Nuclear  
Rua General Severiano  
90-Botafogo  
Rio de Janeiro, Brazil

$^{233}\text{U}(0)$ ,  $^{234}\text{U}(0)$ ,  $^{235}\text{U}(0)$

- 340 Hospital das Clinicas da Faculdade  
de Medicina de Universidade de Sao Paulo  
Sao Paulo, Brazil

$^{252}\text{Cf}(0)$

- 341 Instituto de Energia Atomica  
Caixa Postal, 11.049 - Pinheiros  
05508 - Sao Paulo, Brazil

$^{252}\text{Cf}(S)$

CANADA

- 342 Alberta, University of  
Edmonton, Alberta, Canada  
 $^3\text{H}(0)$ ,  $\text{Tgs}(0)$ ,  $^{133}\text{Xe}(0)$
- 343 Atomic Energy of Canada Limited  
Chalk River, Ontario, Canada  
 $^{85}\text{Kr}(0)$ ,  $^{242}\text{Pu}(0)$ ,  $^{233}\text{U}(0)$ ,  $^{236}\text{U}(0)$
- 344 Atomic Energy of Canada Limited  
P.O. Box 6300  
Postal Station J  
Ottawa, Canada  
 $^{137}\text{Cs}(0)$ ,  $\text{FPSS}(0)$ ,  $^3\text{H}(0)$ ,  $\text{MCP}(0)$ ,  
 $^{147}\text{Pm}(0)$
- 345 Atomic Energy of Canada Limited  
Tunney's Pasture  
Ottawa, Canada  
 $^{60}\text{Co}(B)$
- 346 British Columbia, University of  
Vancouver 8, B.C., Canada  
 $^3\text{H}(0)$ ,  $\text{Tgs}(0)$ ,  $^{91}\text{Y}(0)$
- 347 Charles E. Frosst & Co.  
16717 Transcanada Highway  
Kirkland, Canada  
 $^{28}\text{Mg}(B)$
- 348 Hospital for Sick Children  
555 University Ave.  
Toronto, Canada  
 $^{28}\text{Mg}(B)$
- 349 Manitoba, University of  
Winnipeg, Manitoba, Canada  
 $^3\text{H}(0)$ ,  $\text{Tgs}(0)$

- 350 McGill University  
Montreal 2, P.Q., Canada  
 $^{133}\text{Xe}(0)$ ,  $^{91}\text{Y}(0)$
- 351 McMaster University  
Hamilton, Ontario, Canada  
 $^{89}\text{Sr}(0)$
- 352 Montreal, Universite de  
Montreal, Canada  
 $^3\text{H}(0)$
- 353 Ottawa, University of  
Ottawa, Ontario, Canada  
 $^{238}\text{U}(0)$
- 354 Royal Victoria Hospital  
Montreal 2, Quebec, Canada  
MCP(0)
- 355 Simon Fraser University  
Burnaby 2, B.C., Canada  
 $^{129}\text{I}(0)$
- 356 Toronto General Hospital  
101 College St.  
Toronto 2, Ontario, Canada  
 $^{133}\text{Xe}(0)$
- 357 Western Ontario, University of  
London, Ontario, Canada  
 $^{129}\text{I}(0)$
- 358 Winnipeg General Hospital  
700 Bannatyne Ave.  
Winnipeg 3, Manitoba, Canada  
 $^{133}\text{Xe}(0)$

#### CHINA

- 359 National Cash Register Mfg. Co., Ltd.  
No. 55 Wong Chuk Hang Road  
Aberdeen Hong Kong, China  
 $^{85}\text{Kr}(0)$
- 360 Semi-Conductor Devices, Ltd.  
59-61 Wong Chuk Hang Road  
Aberdeen, Hong Kong, China  
 $^{85}\text{Kr}(0)$

#### DENMARK

- 361 Atomic Energy Commission  
Research Establishment Riso  
Isotope Division  
Roskilde, Denmark  
 $^{166}\text{Ho}(S)$
- 362 Kobenhavns Universitet  
Riso Pr.  
Roskilde, Denmark  
 $^{241}\text{Am}(0)$ ,  $^{237}\text{Np}(0)$
- 363 Embassy of Denmark  
3200 Whitehaven St., NW  
Washington, DC 20008  
 $^{235}\text{U}(0)$
- 364 Psychochemistry Institute  
Blegdamsvej 9  
2100 Copenhagen, Denmark  
 $^{28}\text{Mg}(B)$

#### ENGLAND

- 365 Alfred Chester Beatty Body Dynamics Lab  
Brooksdon, Cranbrook,  
Kent, England  
 $^{28}\text{Mg}(B)$
- 366 British Embassy  
3100 Massachusetts Ave., NW  
Washington, DC 20008  
 $^{236}\text{U}(0)$
- 367 Christie Hospital  
Withington, Manchester, England  
 $^{252}\text{Cf}(S)$
- 368 Churchill Hospital  
Headington, Oxford, England  
 $^{252}\text{Cf}(S)$
- 369 Leeds, University of  
Leeds 2, England  
 $^{235}\text{U}(0)$
- 370 Newcastle Upon Tyne, University of  
Newcastle Upon Tyne, England  
 $^{131}\text{I}(0)$

371 Oxford, University of  
Nuclear Physics Laboratory  
21 Banbury Rd.  
Oxford, England

$^{235}\text{U}(0)$

372 Radiochemical Centre  
White Lion Rd.  
Amersham, Bucks, England

$^{252}\text{Cf}(S)$ ,  $^{137}\text{Cs}(0)$ ,  $^{153}\text{Gd}(0)$ ,  $^{129}\text{I}(0)$ ,  
 $^{85}\text{Kr}(0)$ ,  $\text{MCP}(0)$ ,  $^{147}\text{Pm}(0)$ ,  $^{151}\text{Sm}(0)$ ,  
 $^{89}\text{Sr}(0)$ ,  $^{90}\text{Sr}(0)$ ,  $^{99}\text{Tc}(0)$ ,  $^{91}\text{Y}(0)$ ,  
 $^{95}\text{Zr}(0)$

373 Lab of the Marine Biological Assn.  
Citadel Hill  
Plymouth, England

$^{28}\text{Mg}(B)$

374 Micro-Bio Laboratories  
46 Pembroke Rd.  
London, England

$^{28}\text{Mg}(B)$

375 United Kingdom Treasury and Supply  
Delegation  
25 Broadway  
New York, NY 10004

$^{241}\text{Am}(0)$ ,  $\text{MCP}(0)$ ,  $^{89}\text{Sr}(0)$

#### FRANCE

376 C.E.A., DRI+SCA  
29-33 Rue de La Federation  
Paris XVI, France

$^{240}\text{Pu}(0)$ ,  $^{241}\text{Pu}(0)$ ,  $^{236}\text{U}(0)$

377 C.E.A. New York Office  
972 Fifth Ave.  
New York, NY 10021

$^{37}\text{Ar}(0)$ ,  $^{99}\text{Tc}(0)$

378 C.E.A.  
Department des Radioelements  
B. P. No. 2  
91190 Gif Sur Yvette, France

$^{241}\text{Am}(0)$ ,  $^{37}\text{Ar}(0)$ ,  $^{140}\text{Ba}(0)$ ,  $^{137}\text{Cs}(0)$ ,  
 $^{237}\text{Np}(0)$ ,  $^{238}\text{Pu}(0)$ ,  $^{90}\text{Sr}(0)$ ,  $^{99}\text{Tc}(0)$

379 C.N.R.S. New York Office  
972 Fifth Ave.  
New York, NY 10021

$^{129}\text{I}(0)$

380 French Atomic Energy Commission  
1730 Rhode Island Ave. N. W.  
Suite 1217  
Washington, D.C. 20036

$^{238}\text{Pu}(0)$ ,  $^{99}\text{Tc}(0)$

381 Groupe de Physique et Dosimetrie  
Services des Piles  
Centre d'Etudes  
Nucleaires de Saclay (CEA)  
Republic of France

$^{236}\text{U}(0)$

#### GERMANY

382 American Hoechst Corporation  
P.O. Box 2500  
Somerville, NJ 08876

$^{85}\text{Kr}(0)$

383 Darmstadt, Technischen Hochschule  
61 Darmstadt, Germany

$^{252}\text{Cf}(0)$

384 EURATOM Transuranium Institute  
P.O. Box 452  
75 Karlsruhe, West Germany

$^{14}\text{C}(0)$ ,  $^{252}\text{Cf}(S)$

385 Gesellschaft fur Kernforschung mbH  
Institute fuer Angewandte Reaktor  
Physik  
Weberstrasse 5  
75 Karlsruhe, West Germany

$^{241}\text{Am}(0)$ ,  $^{237}\text{Np}(0)$ ,  $^{238}\text{Pu}(0)$ ,  
 $^{242}\text{Pu}(0)$ ,  $^{99}\text{Tc}(0)$ ,  $^{233}\text{U}(0)$

386 Hahn-Meitner-Institut  
fur Kernforschung Berlin,  
Sektion Kernphysik  
Berlin, Germany

$^{252}\text{Cf}$

387 Kernforschung Sanlage  
Postfach 365  
517 Julich, Germany

$^{237}\text{Np}(0)$ ,  $^{99}\text{Tc}(0)$

388 Mainz/Rhein, Universitat  
Mainz am Rhein, Germany

$^{239}\text{Pu}(0)$

389 Marburg/Lahn, Universitat  
Marburg/Lahn, Germany

$^{106}\text{Ru}(0)$ ,  $\text{SS}(0)$

- 390 Max Planck Institut für Kernphysik  
Saupfercheckweg  
Heidelberg, Germany  
 $^{140}\text{Ba}(0)$
- 391 Max-Planck-Institut für Physik  
und Astrophysik  
Inst. für Extraterrestrische Physik  
8046 Garching, West Germany  
 $^{244}\text{Cm}(0)$
- 392 Messrs Kuhne & Nagel  
Flughafenbüro  
Berlin-Tempelhof, West Germany  
 $^{28}\text{Mg}(B)$
- 393 Messrs Kuhne & Nagel  
Flughafenbüro  
505 Porz, Flughafen  
Köln-Bonn, Germany  
 $^{28}\text{Mg}(B)$
- 394 München, Technische Hochschule  
Arcisstrasse 21  
8 München 2  
Germany  
 $\text{MCP}(0), ^{151}\text{Sm}(0), ^{133}\text{Xe}(0)$
- 395 W. Maier Kamm. Ges.  
722 Schwenningen a. N.  
Postfach (P.O.B.) 125  
West Germany  
 $^{147}\text{Pm}(0)$
- 396 Physikalisch-Technische Bundesanstalt  
33 Braunschweig  
Bundesallee 100  
West Germany  
 $^{252}\text{Cf}(S)$

#### GREECE

- 397 Greek Atomic Energy Commission,  
N.R.C. Democ  
Agia Paraskevi Attikis  
Athens, Greece  
 $^{129}\text{I}(0)$

#### HUNGARY

- 398 Institute of Experimental Physics  
Kossuth University  
Bem ter' 18.A  
Debrecen, Hungary  
 $^{252}\text{Cf}(S)$

#### INDIA

- 399 Bhabha Atomic Research Centre  
Government of India  
3rd Floor Mohatta Bldg.  
Bombay 1, India  
 $^{244}\text{Cf}(0), ^{244}\text{Cm}(0), ^{238}\text{U}(0)$

#### ISRAEL

- 400 Embassy of Israel  
1621-22nd St., NW  
Washington, DC 20008  
 $^{238}\text{Pu}(0), ^{230}\text{Th}(0)$
- 401 Government of Israel  
Ministry of Defense  
850 Third Avenue  
New York, NY 10022  
 $^{129}\text{I}(0)$
- 40% Hebrew University of Jerusalem, The  
Jerusalem, Israel  
 $^{99}\text{Tc}(0)$
- 403 Landseas Corporation  
1212 Avenue of the Americas  
New York, NY 10036  
 $^{252}\text{Cf}(0)$
- 404 Technion-Israel Institute of Technology  
P.O. Box 4910  
Haifa, Israel  
 $\text{CSI}(0)$
- 405 Weizmann Institute of Science  
P.O. Box 26  
Rehovot, Israel  
 $^{252}\text{Cf}(0)$

#### ITALY

- 406 CNEN-Servizio Approvvigionamenti  
Viale Regina Margherita 125  
Rome, Italy  
 $^{232}\text{Th}(0)$
- 407 Comitato Nazionale per l'Energia Nucleare  
818 185h Street, NW  
Washington, DC 20009  
 $^{252}\text{Cf}(0), ^{242}\text{Pu}(0)$
- 408 Euratom C.C.R.  
Ispra (Varese), Italy  
 $^{252}\text{Cf}(S)$

JAPAN

- 409 Cancer Institute Hospital  
Kami-Ikebukuro, Toshima-Ku  
Tokyo, Japan  
 $^{252}\text{Cf}(\text{S})$
- 410 Daiichi Pure Chemicals Company, Ltd.  
No. 1, 3-Chome, Edobashi, Nihonbashi  
Chuo-Ku, Tokyo 103 Japan  
 $^3\text{H}(\text{O})$
- 411 Japan Radioisotope Association  
Hon-Komagome 2 Chome 28  
Bunkyo-Ku  
Tokyo, Japan  
 $^8\text{Kr}(\text{O})$
- 412 Mitsubishi International Corporation  
277 Park Ave.  
New York, NY 10017  
 $^{243}\text{Am}(\text{O})$ ,  $^{140}\text{Ba}(\text{O})$ ,  $^{137}\text{Cs}(\text{O})$ ,  
FPSS(O), MCP(O),  $^{95}\text{Nb}(\text{O})$ ,  $^{147}\text{Pm}(\text{O})$ ,  
 $^{89}\text{Sr}(\text{O})$ ,  $^{95}\text{Zr}(\text{O})$
- 413 Mitsus and Company (USA), Inc.  
200 Park Avenue  
New York, NY 10017  
 $^{234}\text{U}(\text{O})$
- 414 Sumitomo Shoji America, Inc.  
345 Park Ave., 14th Floor  
New York, NY 10022  
 $^8\text{Kr}(\text{O})$

MEXICO

- 415 Comision Nacional de Energia Nuclear  
Miguel Angel de Quevedo 530A  
Mexico 21, D. F.  
 $^{137}\text{Cs}(\text{O})$ , FPSS(O)

NETHERLANDS

- 416 N. V. Philips-Duphar  
P.O. Box 2  
Weesp, The Netherlands  
CSI(O)
- 417 Rijksinkoopbureau  
(Netherlands Govt. Purchasing Office)  
55 A Laan van Meerdervoort  
The Hague, Netherlands  
 $^{133}\text{Xe}(\text{O})$

PUERTO RICO

- 418 Puerto Rico, University of  
Puerto Rico Nuclear Center  
College Station  
Mayaguez, Puerto Rico 00709  
 $^{60}\text{Co}(\text{B})$ ,  $^{131}\text{I}(\text{O})$ , FPSS(O)

SPAIN

- 419 Junta de Energia Nuclear - Reactor  
Ciudad Universitaria  
Madrid 3, Spain  
 $^{235}\text{U}(\text{O})$

SWEDEN

- 420 Aktiebolaget Atomenergi  
Studsvik,  
Nykoping, Sweden  
 $^{242}\text{Pu}(\text{O})$ ,  $^{133}\text{Xe}(\text{O})$
- 421 Research Institute of National Defense  
Forsvarets Forskningsanstalt  
Avdelning 1, Sundbyberg 4, Sweden  
 $^{106}\text{Ru}(\text{O})$
- 422 Uppsala, University of  
Uppsala, Sweden  
 $^{161}\text{Hf}(\text{O})$ ,  $^{106}\text{Ru}(\text{O})$

SWITZERLAND

- 423 Embassy of Switzerland  
2900 Cathedral Avenue, N.W.  
Washington, D.C. 20008  
 $^{230}\text{Th}(\text{O})$ ,  $^{235}\text{U}(\text{O})$
- 424 European Organization of  
Nuclear Research  
1211 Geneva 23, Switzerland  
 $^{238}\text{U}(\text{O})$
- 425 Swiss Federal Institute of  
Technology  
Schneggstrasse 5  
CH-8006 Zurich, Switzerland  
 $^{89}\text{Sr}(\text{O})$ ,  $^{90}\text{Sr}(\text{O})$
- 426 Radium-Chemie  
A. Zeller and Company  
9053 Teufen / Ar  
Switzerland  
 $^3\text{H}(\text{O})$ ,  $^{147}\text{Pm}(\text{O})$

11. ALPHABETICAL LIST OF ISOTOPES,  
CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Americium

12, 67, 107

Americium 241

26, 67, 84, 88, 93, 159, 167, 177, 178,  
179, 196, 254, 255, 257, 301

Americium 243

15, 26, 96, 257, 291

Antimony 124

19

Antimony 125

19

Argon 37

163, 164, 267

Argon 41

323

Barium 140

2, 19, 26, 59, 74, 129, 272,  
284, 323

Boron 10

14, 20, 321

Calcium 45

19

Calcium 47

30, 31, 62, 108, 138, 228, 298

Californium 249

257

Californium 252

1, 3, 7, 10, 11, 15, 22, 25, 26, 31,  
34, 35, 36, 39, 42, 45, 46, 51, 58, 59,  
63, 69, 71, 72, 73, 75, 76, 82, 83, 87,  
**88, 96, 97, 100, 107, 104, 112, 113,**  
120, 123, 125, 132, 133, 134, 136, 140,  
152, 154, 155, 157, 160, 163, 164, 183,  
184, 185, 188, 190, 197, 198, 207, 209,  
212, 215, 219, 221, 222, 223, 228, 229,  
236, 237, 238, 241, 245, 247, 249, 256,  
257, 259, 263, 264, 268, 269, 273, 275,  
277, 279, 281, 286, 287, 295, 300, 311,  
313, 314, 322, 323, 326, 327

Carbon 14

26

Cerium

26

Cerium 139

19

Cerium 141

19

Cerium 144

42, 107, 133, 257

Cerium & Praseodymium 144

19

Cesium 134

17, 19

Cesium 137

19, 26, 83, 84, 88, 93, 99, 107, 131,  
133, 153, 167, 183, 196, 234, 257, 296,  
315

Cesium 144

15

Cobalt 60

13, 18, 19, 96, 136, 199, 257, 276, 320

Copper 67

48, 94, 111, 141, 267, 282

Curium

67, 257

Curium 243

257, 299

Curium 244

15, 26, 69, 82, 114, 257, 323

Curium 245

15

Curium 246

15

Curium 248

69, 257

Cyclotron Service Irradiations

26, 107, 132, 167, 175, 204, 216, 283,  
301

Depleted Uranium

19, 26

Einsteinium 253

15, 69, 182, 257

Einsteinium 254

2, 15, 257

Enriched Uranium

26

Europium 152

19

Europium 154  
19

Europium 155  
19

Europium 152+154  
2, 15, 93, 181, 257

Fermium 257  
38, 42, 144

Fission Products Special Services  
2, 30, 31, 83, 136, 142, 174, 234,  
274, 285

Fluorine 18  
216

Gadolinium 67  
249

Gadolinium 153  
43, 167, 182, 257, 259, 262, 294

Gallium 67  
11, 51, 66, 81, 116, 149, 183, 308

Hafnium 181  
15, 189, 204

Hydrogen 3  
19, 26

Indium 111  
148

Indium 114  
312

Indium 115  
2

Indium 116  
313

Iodine 123  
50

Iodine 129  
1, 15, 51, 108, 136, 163, 164, 167,  
186, 198, 231, 257, 314

Iodine 131  
19, 26, 37, 53, 201, 214, 296

Iodine 144  
312

Iron 52  
216

Iron 59  
19

Iridium 192  
21, 52

Krypton 85  
4, 8, 9, 17, 23, 26, 32, 40, 42, 47,  
56, 64, 77, 78, 79, 80, 85, 89, 91, 92,  
96, 98, 105, 106, 107, 109, 110, 114,  
115, 117, 143, 144, 153, 156, 157, 166,  
169, 181, 195, 202, 235, 242, 243, 251,  
252, 270, 288, 291, 297, 316, 317, 324,  
325, 329

Lead 203  
173, 182, 206, 306

Magnesium  
60

Magnesium 28  
63, 232, 240, 258, 303, 305, 307, 312

Mercury 28  
33

Mercury 203  
19

Miscellaneous Compound Preparation  
11, 15, 27, 30, 31, 40, 44, 54, 83, 84,  
93, 119, 150, 153, 156, 161, 167, 182,  
188, 230, 257, 259, 262, 278, 282, 290,  
292, 293, 301, 304, 305, 325

Neodymium 147  
182

Neptunium 237  
2, 15, 19, 26, 40, 56, 88, 159, 205  
257, 273, 299, 321, 323

Neptunium 239  
19, 26

Niobium  
2, 26

Niobium 95  
19, 84, 153, 280

Normal Uranium  
26, 99, 161, 204, 259

Phosphorus 33  
107, 167, 225, 239, 259

Plutonium  
69, 160, 161, 178

Plutonium 236  
2, 12, 15, 74, 127, 137, 211, 257, 323

Plutonium 238  
25, 26, 30, 40, 41, 67, 86, 87, 99,  
118, 133, 153, 159, 161, 178, 184,  
196, 210, 220, 276, 299

Plutonium 239  
15, 19, 26, 42, 68, 133, 151, 164, 178,  
257, 309

Plutonium 240  
257

Plutonium 241  
114, 256, 257

Plutonium 242  
15, 67, 123, 127, 257

Polonium 210  
19, 26, 56, 179, 265

Potassium 43  
55, 101, 156, 302

Praseodymium 143  
15

Praseodymium 144  
26

Promethium 143  
26

Promethium 147  
19, 96, 114, 133, 142, 153, 181, 250,  
255, 259, 261, 265

Protactinium 231  
206

Reactor Service Irradiations  
14, 15, 50, 90, 126, 136, 168, 171,  
172, 188, 204, 208, 329

Rhenium 186  
278

Rubidium 85  
19

Ruthenium 103  
2, 19, 26, 30, 31, 49, 69, 167, 257,  
299, 328, 329

Ruthenium 106  
15, 19, 42, 48, 93, 96, 107, 108, 119,  
162, 167, 178, 180, 199, 253, 257

Samarium 145  
26

Samarium 151  
2, 107, 125, 167, 273

Scandium 46  
19

Silver  
19

Silver 110  
313

Sodium 22  
19

Special Services  
26, 27, 40, 136, 259

Strontium  
14, 296

Strontium 85  
19

Strontium 89  
15, 19, 29, 48, 84, 97, 103, 114, 121,  
167, 187, 201, 215, 246, 291, 323

Strontium 90  
14, 16, 26, 59, 93, 107, 167, 183,  
261, 289

Sulfur 35  
19

Target Preparation, Radioisotope  
30, 31, 40, 69, 107, 205, 257, 273,  
290

Technetium 99  
30, 31, 135, 153, 167, 260

Thorium  
42, 149, 164, 213, 220, 266, 275

Thorium 229  
164, 257

Thorium 230  
15, 102, 206, 241, 308

Thorium 232  
99, 139, 319, 321

Thorium+Yttrium  
321

Thulium 170  
15

Tritium  
28, 30, 31, 40, 47, 61, 64, 65, 70, 85,  
107, 122, 124, 128, 135, 145, 158, 167,  
176, 177, 181, 190, 195, 205, 218, 224,  
225, 227, 233, 242, 257, 280, 290, 295,  
311, 325

Uranium  
24, 40, 149, 165

Uranium 233  
15, 99, 123, 171, 280, 322

Uranium 234  
15, 257

Uranium 235  
15, 34, 40, 42, 88, 114, 120, 164, 168,  
193, 201, 259, 308, 312, 318, 325

Uranium 236  
15, 40, 42, 257, 290

Uranium 238  
15, 34, 42, 88, 139, 193, 201, 207,  
231, 257, 273, 274, 321

Uranium 255  
257

Uranium Dioxide  
220, 257

Wolfram 185  
19

Xenon 133  
2, 5, 6, 15, 43, 57, 88, 95, 121, 122,  
130, 147, 158, 163, 164, 170, 173, 191,  
192, 194, 200, 203, 218, 226, 228, 257,  
267, 271, 299, 301, 302, 303, 304, 307,  
323, 324

Yttrium 88  
19

Yttrium 90  
14, 19, 26, 69, 296

Yttrium 91  
15, 19, 134, 244, 323

Zinc 65  
26

Zirconium  
26, 31

Zirconium 95  
2, 15, 19, 26, 30, 31, 47, 93, 214,  
228, 257, 272, 323

#### B. FOREIGN

Americium 241  
362, 375, 378, 385

Americium 243  
335, 337, 412

Argon 37  
331, 377, 378

Barium 140  
378, 390, 412

Californium 244  
399

Californium 252  
333, 340, 341, 367, 368, 372, 383, 384,  
386, 396, 398, 403, 405, 407, 408, 409

Carbon 14  
384

Cesium 137  
338, 344, 372, 378, 412, 415

Cobalt 60  
345, 418

Curium 244  
335, 391

Cyclotron Service Irradiations  
404, 416

Fission Products Special Services  
344, 412, 415, 418

Gadolinium 153  
372

Hafnium 161  
422

Holmium 166  
361

Iodine 129  
355, 357, 372, 379, 397, 401

Iodine 131  
370, 418

Krypton 85  
336, 343, 359, 360, 372, 382, 411, 414

Magnesium 28  
347, 348, 364, 365, 373, 374, 392, 393

Miscellaneous Compound Preparation  
344, 354, 372, 394, 412

Neptunium 237  
362, 378, 385, 387

Niobium 95  
412

Normal Uranium  
26

Phosphorus 33  
333

Plutonium 236  
334

Plutonium 238  
330, 378, 380, 385, 400

Plutonium 239  
333, 334, 388

Plutonium 240  
332, 333, 334, 376

Plutonium 241  
334, 376

Plutonium 242  
343, 385, 407, 420

Promethium 147  
336, 344, 372, 395, 412

Ruthenium 106  
389, 421, 422

Samarium 151  
372, 394

Strontium 89  
351, 372, 375, 412, 425

Strontium 90  
372, 378, 425

Target Preparation, Radioisotope  
342, 349

Thorium 230  
330, 400, 423

Thorium 232  
406

Technetium 99  
330, 372, 377, 378, 380, 385, 402

Tritium  
342, 344, 346, 349, 352, 410, 426

Uranium 233  
334, 339, 343, 385

Uranium 234  
339, 413

Uranium 235  
330, 333, 334, 339, 363, 369, 371, 419,  
423

Uranium 236  
334, 343, 366, 376, 381

Uranium 238  
353, 399, 424

Xenon 133  
342, 350, 356, 358, 394, 417

Yttrium 91  
346, 350, 372

Zirconium 95  
372, 412

111. ALPHABETICAL LIST OF STATES AND COUNTRIES  
CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Alabama  
6, 7, 239, 254, 282, 292

Arizona  
9, 17

California  
3, 20, 23, 28, 32, 33, 34, 35, 36, 37,  
38, 39, 40, 43, 44, 45, 47, 65, 76, 78,  
87, 88, 92, 93, 99, 105, 112, 113, 114,  
115, 118, 126, 127, 128, 130, 142, 143,  
145, 166, 176, 191, 194, 207, 210, 217,  
218, 226, 230, 231, 233, 252, 267, 285,  
286, 294, 306

Colorado  
56, 57, 67, 102, 200, 278, 303

Connecticut  
24, 224, 262, 305, 328, 329

District of Columbia  
77, 94, 95, 163, 164, 271, 274, 279,  
289, 290, 310

Florida  
81, 82, 86, 117, 148, 304

Georgia  
96, 97, 144, 212

Idaho  
2, 14, 16

Illinois  
12, 13, 15, 48, 62, 68, 108, 162, 175,  
216, 300

Indiana  
202, 204

Kansas  
120, 121

Kentucky  
122

Louisiana  
83, 132, 253

Maryland  
18, 119, 136, 281, 287, 293, 319

Massachusetts  
11, 29, 49, 52, 75, 79, 101, 110, 134,  
138, 139, 140, 167, 195, 213, 234, 251,  
268, 297, 317

Michigan  
71, 124, 150, 151, 314, 324

Minnesota  
22, 141, 153, 154

Mississippi  
155, 156, 277

Missouri  
135, 157, 229, 235, 263, 312

Nevada  
211, 275

New Hampshire  
168, 219

New Jersey  
4, 5, 27, 64, 66, 98, 146, 169, 203,  
215, 269, 315

New Mexico  
41, 42, 72, 74, 80, 170, 220, 250, 266

New York  
30, 31, 59, 60, 63, 73, 90, 104, 111,  
116, 125, 131, 149, 171, 172, 173, 179,  
205, 208, 214, 225, 227, 228, 232, 260,  
261, 272, 273, 318

North Carolina  
70, 174, 291

North Dakota  
276

Oregon  
192, 193

Ohio  
25, 50, 51, 53, 54, 55, 85, 91, 107,  
109, 159, 160, 161, 165, 187, 188,  
189, 190, 196, 209, 280

Oklahoma  
123

Pennsylvania  
10, 21, 46, 100, 106, 178, 180, 197,  
198, 199, 201, 295, 316, 321, 322,

Rhode Island  
264

South Carolina  
69, 152, 222, 223

Tennessee  
182, 183, 184, 185, 186, 236, 237, 238,  
240, 256, 257, 258, 259, 298, 301

Texas  
1, 58, 61, 84, 129, 137, 147, 158, 177,  
181, 221, 241, 242, 243, 244, 245, 246,  
247, 248, 249, 284

Utah  
299

Virginia  
89, 103, 283, 288, 307, 308, 309

Washington  
19, 26, 207, 265, 296, 311, 313, 323

Wisconsin  
8, 302, 325, 326

Wyoming  
327

#### B. FOREIGN

Australia  
330, 331

Austria  
332, 333

Belgium  
334, 335, 336, 337

Brazil  
338, 339, 340, 341

Canada  
342, 343, 344, 345, 346, 347, 348, 349,  
350, 351, 352, 353, 354, 355, 356, 357,  
358

China  
359, 360

Denmark  
361, 362, 363, 364

England  
365, 366, 367, 368, 369, 370, 371, 372,  
373, 374, 375

France  
376, 377, 378, 379, 380, 381

Germany  
382, 383, 384, 385, 386, 387, 388, 389,  
390, 391, 392, 393, 394, 395, 396

Greece  
397

Hungary  
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India  
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Israel  
400, 401, 402, 403, 404, 405

Italy  
406, 407, 408

Japan  
409, 410, 411, 412, 413, 414

Mexico  
415

Netherlands  
416, 417

Puerto Rico  
418

Spain  
419

Sweden  
420, 421, 422

Switzerland  
423, 424, 425, 426

## IV. RADIOISOTOPE SALES AND TRANSFERS - FY 1973

A = Argonne National Laboratory  
 B = Brookhaven National Laboratory  
 H = Hanford Engineering Development Laboratory  
 I = Idaho Nuclear Corp.  
 M = Mound Laboratory  
 O = Oak Ridge National Laboratory  
 P = Battelle-Pacific Northwest Laboratory  
 S = Savannah River Plant  
 U = United Nuclear Inc.

Isotope	Ship- ments	Domestic		Ship- ments	Foreign		Project (a)		Ship- ments	Total	
		Millicuries, unless noted	Dollars		Millicuries, unless noted	Dollars	Millicuries, unless noted	Dollars		Millicuries, unless noted	Total Dollars
Americium-241(H)				-			13	0.9 $\mu$ Ci	13	0.9 $\mu$ Ci	
Americium-241(O)	59	1,073,696.0 mg	161,054	6	254,590 mg	38,189	2	31,000 mg	4,349	1,365,286 mg	203,592
Americium-241(P)				-			4	2,873 Ci	4	2,873 Ci	
Americium-243(O)	1		100	4	35 mg	3,500	4	16,000 mg	100	16,035 mg	3,700
Argon-37(O)	2	10	505	7	46.4	2,245			9	56.4	2,750
Argon-41(U)				-			5	1.5 Ci	5	1.5 Ci	2,400
Antimony-124(H)				-	-		1	0.8	1	0.8	
Antimony-125(H)				-	-		1	0.5	1	0.5	
Antimony-124(I)				-			2	12,124,000	2	12,124,000	5,348
Barium-140(O)	3	2	75	9	55	413	8	51.5	437	108.5	925
Barium-Lanthanum-140(H)				-			1	1	1	1	
Berkelium-249(O)				-			6	18.1 mg	6	18.1 mg	
Boron-10(H)				-			5	0.207	5	0.207	
Bromine-80(I)				-			7	461	46	461	46
Calcium-45(H)				-			1	12 $\mu$ Ci	1	12 $\mu$ Ci	
Calcium-47(O)	73	55.1	14,019	-	-		12	3.8	1,000	58.9	15,019
Carbon-14(H)				-			1	0.14 $\mu$ Ci	1	0.14 $\mu$ Ci	
Californium-249(O)				-			3	3.9 mg	3	3.9 mg	
Californium-252(B)				-			1	150 $\mu$ g	1	150 $\mu$ g	
Californium-252(H)				-			1	0.31 Ci	1	0.31 Ci	
Californium-252(O)	12	3.4 mg	455	9		220	17	6.1 mg	758	9.5 mg	1,433
Californium-252(S)	5	7.326 mg	82,435	6	12,302 mg	137,834			11	19.628 mg	220,269
Cerium-139(H)				-			1	0.4	1	0.4	
Cerium-141(H)				-			2	2.9	2	2.9	
Cerium-144(O)	1	100	50	-			34	40,037	1,701	40,137	1,751
Cerium-Praseodymium-144(H)				-	-		4	29,511 $\mu$ Ci	4	29,511 $\mu$ Ci	
Cesium-134(H)				-	-		2	10	2	10	
Cesium-134(I)	1	50	45	-					1	50	45
Cesium-137(B)				-			2	87,560 Ci	2	87,560 Ci	

Isotope	Domestic			Foreign			Project (a)			Total		
	Ship- ments	MilliCuries, unless noted	Dollars	Ship- ments	MilliCuries, unless noted	Dollars	Ship- ments	MilliCuries, unless noted	Dollars	Ship- ments	MilliCuries, unless noted	Total Dollars
Cesium-137(H)	-	-	-	-	-	-	7	12,400 $\mu$ Ci	-	7	12,400 $\mu$ Ci	-
Cesium-137(O)	54	25,975,435	15,056	9	22,157,000	10,077	64	52,258	30	127	48,185,593	25,163
Cobalt-60(B)	-	-	-	-	-	-	6	442,600 Ci	-	6	442,600 Ci	-
Cobalt-60(H)	-	-	-	-	-	-	1	5.8	-	1	5.8	-
Cobalt-60(I)	1	4,750,000	3,912	-	-	-	-	-	-	1	4,750,000	3,912
Cobalt-60(U)	-	-	-	-	-	-	3	3.2 Ci	-	3	3.2 Ci	-
Cobalt-60 Metal (O)	6	1,500	600	-	-	-	-	-	-	6	150.0	600
Cobalt-60 Processed(O)	-	-	28,378	-	-	-	-	-	-	-	-	28,378
Copper-64(I)	-	-	-	-	-	-	2	10	7	2	10	7
Copper-66(I)	-	-	-	-	-	-	2	1	7	2	1	7
Copper-67(O)	39	252.4 mg	12,780	-	-	-	-	-	-	39	252.4 mg	12,780
Curium-243(O)	1	-	-	-	-	-	1	3.0 mg	-	2	3.0 mg	-
Curium-244(O)	3	1 mg	300	3	21.1 mg	2,113	5	20,252 mg	100	11	20,274.6 mg	2,513
Curium-245(O)	-	-	-	-	-	-	1	14 mg	-	1	14 mg	-
Curium-246(O)	-	-	-	-	-	-	1	7 mg	-	1	7 mg	-
Curium-248(O)	-	-	-	-	-	-	8	18.7 mg	-	8	18.7 mg	-
Einsteinium-253(O)	-	-	-	-	-	-	11	2.6 mg	-	11	2.6 mg	-
Einsteinium-254(O)	-	-	-	-	-	-	6	90 mg	30	6	90 mg	30
Europium-152(H)	-	-	-	-	-	-	3	11	-	3	11	-
Europium-154(H)	-	-	-	-	-	-	1	1	-	1	1	-
Europium-155(H)	-	-	-	-	-	-	1	0.5	-	1	0.5	-
Europium-152 + 154(O)	2	4	80	-	-	-	3	3.4	90	5	7.4	170
Fermium-257(O)	2	-	-	-	-	-	3	-	-	3	-	-
Fission Products(O)	-	-	-	2	10.0	55	2	20.0	55	4	30.0	110
Gadolinium-153(O)	4	6,000.0	5,000	1	50.0	250	8	1,951.0	5,500	13	8,201.0	10,750
Gallium-67(O)	72	22,831.2	36,741	-	-	-	64	5,547.7	47,294	136	28,378.9	84,035
Hafnium-180(I)	-	-	-	-	-	-	1	23,400	532	1	23,400	532
Hafnium-181(I)	-	-	-	-	-	-	1	920	24	1	920	24
Hafnium-181(O)	3	5.5	75	1	10.0	30	2	18.0	55	6	33.5	160
Hydrogen-3(I)	-	-	-	-	-	-	16	0.41	-	16	0.41	-
Hydrogen-3(O)	171	164,543,000.0	149,123	9	30,538,602.2	23,830	22	3,435,412.5	4,787	202	198,536,015.1	177,740
Indium-111(O)	1	50.0	650	-	-	-	-	-	-	1	50.0	650
Indium-114(O)	1	310	30	-	-	-	-	-	-	1	3.0	30
Indium-115(H)	-	-	-	-	-	-	1	<0.1 $\mu$ Ci	-	1	<0.1 $\mu$ Ci	-

Isotope	Domestic			Foreign			Project (a)			Total		
	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Total Dollars
Indium-116(I)	1	22,000	31				1	2	7	2	22,002	
Iodine-128(I)	7	25	49							7	25	49
Iodine-129(O)	12	2,564 mg	2,986	5	3,600 mg	2,825	3	2,150.0 mg	1,737	20	8,314.0 mg	7,548
Iodine-131(H)							8	7.938		8	7.938	
Iodine-131(O)	38	3,915.0	3,885				2	25	50	40	3,940.0	3,935
Iridium-192(H)							4	72 Ci		4	72 Ci	
Iridium-192(O)	1	1.0	25							1	1.0	5
Iron-55(P)							1	0.1 Ci		1	0.1 Ci	
Iron-59(H)							1	0.7		1	0.7	
Krypton-85(O)	148	5,512,650.1	186,872	19	157,050.0	27,364	13	220,030	5,680	180	6,889,730.1	219,916
Lead-203(O)	3	16.0					1	3.0		4	19.0	
Lead-210(H)							1	<0.1 $\mu$ Ci		1	<0.1 $\mu$ Ci	
Magnesium-28(B)	42	5.9	8,260	9	1.15	1,610				51	7.05	9,870
Mercury-203(H)							2	2.0		2	2.0	
Miscellaneous Compounds(O)	43	2,477.5 units	9,260	2	1.0 units	3,250	31	5,702.6 units	5,673	76	8,181.1 units	18,183
Neodymium-147(O)							1	50.0		1	50.0	
Neptunium-237(H)							4	3.2005		4	3.2005	
Neptunium-237(O)	4	2,700 mg	802	8	137,182 mg	30,878	6	24,490.9 mg	3,844	18	164,372.9	35,524
Neptunium-237(U)							1	5 kg		1	5 kg	
Niobium-95(O)	30	129.5	3,238	1	10.0	250	3	6.0	150	34	145.5	3,638
Phosphorus-32(I)	1	5.0	7							1	5	7
Phosphorus-33(O)	31	1,636.0	16,910	8	1,379	10,250	1	1.0	35	40	3,016.0	27,195
Plutonium(U)							2	5,469 kg		2	5,469 kg	
Plutonium-236(O)	2		(3,254)	1	10,000.0 mg	6,000	6		1,292	9	10,000.0	4,038
Plutonium-238(H)							1	1.2		1	1.2	
Plutonium-238(O)	20	194,964.7 mg	207,634	9	115,758 mg	139,395	8	6,737.8 mg	600	37	317,460.5 mg	347,629
Plutonium-238(P)	3	64.8 g	8,158				35	27,130.4 g		38	27,195.2 g	8,158
Plutonium-239(H)							9	100.2		9	100.2	
Plutonium-239(M)	2	128 g	200				17	6,940 g	20,550	19	7,068 g	20,750
Plutonium-240(O)				5	701.0 mg	1,074	1	4,501.3 mg		6	5,202.3 mg	1,874
Plutonium-241(M)							1	13 g		1	13 g	
Plutonium-241(O)	1		100	4	300.0 mg	1,906	4	16,143.0 mg		9	16,443.0 mg	2,006
Plutonium-242(O)	2	4.5 mg	72	4	41.0 mg	651	4	15,010.3 mg		10	15,055.8 mg	723
Polonium-210(H)							6	134.0		6	134.0	
Polonium-210(M)	2	302 Ci	47,476							2	302 Ci	47,476
Potassium-43(O)	63	214.0	21,400							63	214.0	21,400

Isotope	Domestic			Foreign			Project (a)			Total		
	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Total Dollars
Praseodymium-143(O)							1	4.0	200	1	4.0	200
Promethium-143(H)							1	0.004		1	0.004	
Promethium-147 (H)							15	10.8002		15	10.8002	
Prmethium-147(O)	15	163,746,000.0	39.669	84	20,471,000.0	7,152	7	995,000.0	1.978	106	185,212,000.0	48.799
Promethium-147 (P)	4	202.000 Ci					2	75.000 Ci		6	277.000 Ci	
Rubidium-86(H)							1	3.5		1	3.5	
Ruthenium-103(H)							2	11		2	11	
Ruthenium-103(O)	6	14.0	350		-		9	31.0	775	15	45.0	1.125
Ruthenium-106(H)							4	14		4	14	
Ruthenium-106(O)	10	57.0	1,425	2	410	100	9	44.0	1,100	21	105.0	2.625
Samarium-145(H)							1	0.0016		1	0.0016	
Samarium-151(O) (Sm as Sm <sub>2</sub> O <sub>3</sub> )	4	69.0 mg	2.484	3	1,060.0 mg	2,260	2	50.0 mg	2,139	9	1.179 mg	6.883
Scandium-46(H)							1	2.2		1	2.2	
Silver-110(H)							1	1.8		1	1.8	
Silver-110(I)	1	267.000	426							1	267.000	426
Sodium-22 (H)							1	1		1	1	
Sodium-24(I)	6	8	42							6	8	42
Strontium-85(H)							5	10.3		5	10.3	
Strontium-89(H)							1	1.2		1	1.2	
Strontium-89(O)	20	129.5	1,768	11	175.0	2,362	3	24.0	324	34	328.5	4.454
Strontium-90(O)	31	221,247,630.0	44.448	8	1,481,250.0	750				39	222,728,800.0	45.198
Strontium-90(P)							1	110 Ci		1	110 Ci	
Strontium-Yttrium-90(H)							17	14.7111		17	14.7111	
Sulfur-35(I)							1	0.012		1	0.012	
Technetium-99(O)	4	14,000.0 mg	835	10	28,217.9 mg	1,976	1	2,000.0 mg	161	15	44,217.9 mg	2.972
Thorium-229(M)							1	4.5 mg		1	4.5 mg	
Thorium-229(O)	1	0.1 mg	10				1	0.5 mg		2	0.6 mg	10
Thorium-230(O)	5	15.0 mg	568	3	13.0 mg	300	1	2.0 mg		9	30.0 mg	868
Thorium-232(O)	2	25,000,194.0 mg	728	1	25,000.0 mg	25				3	25,025,194.0 mg	753
Thulium-170(I)	3	87,000.0	2,147							3	87.000	2,147
Uranium-233(O)	3	2,650.0 mg	836	4	500.0 mg	950	3	50.4 mg		10	3,200.4 mg	1,786
Uranium-234(M)							1	5.1 g		1	5.1 g	
Uranium-234(O)				1	200.0 mg	1,580	2	1,200.0 mg		3	1,400.0 mg	1,580
Uranium-235(O)	21	114,476.0 mg	2,458	7	49,180.0 mg	1,637	15	1,030,379.0 mg		43	1,194,035.0 mg	4,095
Uranium-236(O)				6	366.6 mg	361	4	111.3 mg		10	477.9 mg	361

Isotope	Ship-	Domestic			Foreign			(a)			Total		
		Milli-	Ship-		Milli-	Ship-		Project	Ship-		Milli-	Ship-	Total
		curies, unless noted	ments	Dollars	curies, unless noted	ments	Dollars	Milli-	ments		curies, unless noted	ments	Dollars
Uranium-238(O)	20	1,085,910.0		2,123	5	38,460.0 mg	237	10		35	1,641,504.9 mg		2,360
Uranium--Depleted(M)								1		1	229		
Uranium--Depleted(U)								1		1	523 kg		
Uranium dioxide(M)								2		2	116 g		
Uranium--Normal(O)	2	1,000,000.0 mg		(2)	1	15.0 mg	18	1		4	2,349,015.0 mg		16
Uranium--Normal(U)								1		1	13 kg		
Wolfram-185(H)								1		1	0.012		
Xenon-125(I)								2		14	11		14
Xenon-133(O)	462	486,840.0		27,690	132	310,050.0	13,912	42		636	819,620.0		43,777
Yttrium-88(H)								4		4	712		
Yttrium-90(H)								15		15	14,711		
Yttrium-90(O)								1		55	5.0		55
Yttrium-91(O)	1	2.0		25	6	52.0	575	4		355	86.0		955
Yttrium-91(H)								1		1	1.8		
Zinc-65(H)								1		1	0.0024		
Zirconium-95(H)								1		1	0.3 µCi		
Zirconium-95(O)	6	410.0		680	12	155.3	854	9		358	624.3		1,892
Zirconium--Niobium-95(H)								3		3	60.528		
Cyclotron Service Irradiations(A)	184			15,921				145		329			15,921
Cyclotron Service Irradiations(O)(b)	16	17.0		85,532	12	296.0	16,759	2		30	315.0		104,666
Heavy Element Technical Charges(O)(c)				60,011			29,112				56,590		145,713
Reactor Service Irradiations(A)	71			8,589				252		323			8,589
Reactor Service Irradiations(B)	59			10,433				758		817	45,795		56,228
Special Services(O)(d)	4			24,723	1		40,900	21		26	36,300		101,923
TOTAL	1,931			\$1,359,493	450		\$566,829	1,940			\$264,962	4,321	\$2,191,284

(a) Materials are sometimes transferred between AEC sites without dollars or at costs other than normal.

(b) Radioisotopes produced by cyclotron service irradiations:  $^{133}\text{Ba}$ ,  $^{205,206,207}\text{Bi}$ ,  $^{11}\text{C}$ ,  $^{129,134}\text{Cs}$ ,  $^{56,57,61}\text{Co}$ ,  $^{64}\text{Cu}$ ,  $^{149,150,153}\text{Eu}$ ,  $^{18}\text{F}$ ,  $^{67,69,70}\text{Ga}$ ,  $^{67,68}\text{Ge}$ ,  $^{197}\text{Au}$ ,  $^{172}\text{Hf}$ ,  $^{111}\text{In}$ ,  $^{123}\text{I}$ ,  $^{173}\text{Lu}$ ,  $^{143}\text{Pm}$ ,  $^{189}\text{Re}$ ,  $^{99}\text{Rh}$ ,  $^{83,84}\text{Rb}$ ,  $^{95\text{m},95}\text{mTc}$ ,  $^{169}\text{Tm}$ ,  $^{87,88}\text{Y}$ ,  $^{105}\text{Ag}$ ,  $^{26}\text{Al}$ ,  $^{109}\text{Cd}$ .

(c) Includes such items as fabricating, plating, and encapsulating sources, rolling foils, and handling.

(d) Includes such items as target fabrication, source encapsulation, and preparation of special chemical forms.